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INDUSTRIAL INVESTMENT IN FIXED CAPITAL: A RECONSIDERATION [1]

MANY of our ideas about investment are derived, directly or indirectly, from Keynes. His *General Theory* serves as a convenient starting point. In it investment played an important part. 'Thus to justify any given amount of employment there must be an amount of current investment sufficient to absorb the excess of total output over what the community chooses to consume when employment is at the given level.' [2] 'The amount of current investment will depend, in turn, on what we shall call the inducement to invest; and the inducement to invest will be found to depend on the relation between the schedule of the marginal efficiency of capital and the complex of rates of interest on loans of various maturities and risks.' [3] 'But I suggest that the essential character of the Trade Cycle and, especially, the regularity of time sequence and of duration which justifies us in calling it a cycle is mainly due to the way in which the marginal efficiency of capital fluctuates.' [4]

Yet Keynes specifically excluded from consideration in that book a number of factors relevant to any study of investment: 'We take as given the existing skill and quantity of available labour, the existing quality and quantity of available equipment, the existing technique, the degree of competition, the tastes and habits of the consumer, . . .' [5] That changes in population, changes in tastes, and changes in the methods and techniques of production are all excluded

[1] Some of the material contained in this essay was included in lectures given to the Glasgow and Dundee Branches of the Scottish Economic Society in December 1955. I am much indebted to Mr. P. T. Bauer, Dr. A. R. Prest, Professor Sir Dennis Robertson and Professor R. S. Sayers for critical comments on an earlier draft: the mistakes which remain are of course my own.

[2] P. 27.

[3] Pp. 27, 28.

[4] P. 313.

[5] P. 245.

has, surely, been forgotten by some of those who have taken Keynes's conclusions on such matters as the marginal efficiency of capital in the long run, and applied them, holus-bolus, to the real world.

The emphasis in *The General Theory* is rather on the effects of investment than on its causes, on the investment multiplier rather than on the accelerator, although for many years Keynes had been active in his advocacy of public works as a remedy for unemployment and in stressing the importance of public investment. Investment is of course discussed as a whole, not divided by sectors. But, partly perhaps because of the use of the words '*entrepreneurs* undertaking investment', many of us derived the impression that for 'investment' we could write 'industrial investment' without making any great change.

This impression was confirmed by the context in which the marginal efficiency of capital was discussed. So it is not surprising that in Harrod's book *The Trade Cycle*, for instance, we find a very strong accelerator that has to be heavily damped down to bring the model into line with the real world. Investment is thought of largely as industrial investment subject to strong cyclical fluctuations. That view was widely held. Of course other sorts of investment were recognised as important, especially investment in housing; but unconsciously discussion of investment tended to be coloured by arguments drawn from the field of industrial investment.

The main characteristics and consequences of investment in this scheme of things could perhaps be summarised in a sentence by saying that investment fluctuates greatly in the course of the trade cycle because of the volatility of the marginal efficiency of capital and this has a profound effect on the level of employment and income. A rider might be added that in Keynes's view in the long run investment is likely to be inadequate to maintain a high level of employment, because the marginal efficiency of capital will be driven down by the accumulation of capital.

What modifications to these views of industrial investment should we make today? Four lines of thought on this matter are suggested.

1. Industrial investment strictly defined is less important, and other investment more important in its immediate effect on the level of income and employment, than is generally realised.

2. Industrial investment in fixed assets is less volatile than it is often assumed to be.

3. Instead of considering the rate of interest by itself as one of the determinants of the rate of investment, we should broaden our approach and consider the availability of funds on reasonable terms.

4. There are a number of factors which raise the marginal efficiency of capital in the long run ; some of them are closely connected with the rate of investment, and some may be cumulative in their effects.

I

We now have a wealth of statistics on past investments. Taking the 1954 Blue Book, Table 42, we find that, of gross domestic fixed capital formation of £2,333 m. in 1953, only £660 m. or 28 per cent. was carried out by 'companies' as compared with £1,317 m. by central and local government and public corporations. (There was no doubt some industrial investment also included in the £356 m. by persons including unincorporated businesses.) Naturally the size of the field in which companies operate has been reduced in Britain recently by nationalisation. But that process has not bitten deeply into the purely industrial sector ; with the exception of coal the public corporations could be described as operating public utilities.

These public utilities, electricity, transport, etc., and housing, account for the greater part of fixed capital investment. It has been argued that in Britain in the past decade they have obtained too much of the scarce real resources available and the industrial sector too little.[6] There is much force in this, but an even stronger case can be made out for the argument that within the field of public corporations, without the guidance of old-fashioned motives of profit and loss and return on capital, and subject to the pressures of powerful groups and persons, there has been a fantastic distribution of resources as between road and rail transport, on the one hand, and electricity supply, on the other. That is by the way, however, for, although particularly marked in Britain, the large part of investible funds absorbed by the public utilities is evident also in other countries.

The distinction between industry and the public utilities would not be worth stressing if investment in each were governed by the same considerations. But that is surely not so. Nor does the method of ownership seem crucial in this connection. Whether publicly or privately owned, electricity companies have to invest to meet a long-term growth of demand. Their investment programmes in the U.S.A. in the past decade display regional differences in rates of growth—rapid in the South for instance—much more than the cyclical pattern of the economy.

[6] *E.g.* Norman Macrae, 'Has Investment Planning Gone Awry?', *Manchester Guardian Survey of Industry*, March 1953.

It may be objected that we have not really had a proper trade cycle yet since the war; that this has been an abnormal period. In the 1930 slump in Britain, with the exception of house-building, there was not much to choose between the behaviour of industrial and other investment. Indeed some of the statistics seem to indicate that the slump in public utility investment was more serious and prolonged than that in the output of capital goods for private demand.[7] That doubtless was why little attention was paid to the distinction between the sectors at that time. But it does not seem a sufficient reason for disregarding it now. Investment in public utilities was cut at the same time as investment in industry, but not for the same reason. It was cut in deference to the 'Treasury view' that a slump was no time for deficit financing; that has been replaced by the 1944 White Paper on *Employment Policy*. Even the Republican Party in the U.S.A. has proved remarkably quick to stimulate public works projects to meet a recession: that these have mainly been financed by deficits at some state or local authority level to preserve the orthodox respectability of the federal budget has not seriously impaired their usefulness for reflation.

So even if we accept the gloomy view that major slumps like that of the 1930s are likely to recur, we need not expect that investment by public utilities will decline as it did then. Such investment, on the contrary, seems likely to show small year-to-year variations because it depends mainly on long-run growth factors, such as the increase in population and rise in income per head; such tendencies to cyclical variation due to loss of confidence as may threaten probably being offset by government action to maintain a high level of employment.

II

It is time to turn to industrial investment itself. There are several reasons which lead to the conclusion that it is less volatile than Keynesian theory and the many trade cycle models constructed on the basis of that theory have assumed.

For many firms—and especially for those large firms in expanding industries such as chemicals, steel, motors, aircraft, electrical engineering and oil, which account for a large proportion of the total of industrial investment in Britain today—investment in addition to fixed assets is a continuous process. Their investment plans are drawn up several years in advance, subject of course to modification in the light of later events. They are designed to permit the firm to grow into the

[7] R. F. Bretherton, F. A. Burchardt and R. S. G. Rutherford, *Public Investment and the Trade Cycle in Great Britain* (1941), Table 10.

changed and larger markets of the future, to incorporate new techniques of production, and sometimes new products, and to cater for new demands. Those new demands may be either for a new product—television sets, for instance, or polio vaccine—or from a new area, such as Australian demand for motor cars. They may lead to the erection of a new plant, the first television-set factory, or the first motor car factory in Australia. Those are examples of discontinuity in the investment process ; the new bit of investment is identifiable as a unit, and it makes some sense to speak of the rate of return to be expected from it. They are therefore the cases most suited to analysis by Keynesian methods. But even in such cases the familiar comparison of marginal cost and marginal efficiency may prove inadequate if it leads to consideration only of the direct effects of the establishment of the new factory, and to the neglect of the indirect and long-run effects. Such neglect is inevitable on the restrictive Keynesian assumptions of unchanged techniques and tastes ; for the indirect and long-term effects ensue from expectations of further developments in techniques and tastes. It might, for instance, be decided by a British or American motor car firm to establish a factory to build complete cars in Australia, even if it were estimated that the plant would produce at a loss for the duration of the life of much of the machinery first installed therein, in order to secure a place in a market expected to be profitable in later decades. It is reported that several corporations and groups in the U.S.A. are planning to build atomic power stations although they do not expect these first ones to show a profit.

The stability of investment plans is probably reinforced where there is some degree of monopoly, and by the effects of high tax-rates, as these factors tend to reduce fluctuations in net profits. Inasmuch as certain large companies are controlled by the active managers rather than the owners—the ordinary shareholders—this also may lead to a preference for long-term growth rather than high profits in the present and immediate future.

Such long-term effects can of course be incorporated in a short-term analysis by capitalisation of expected benefits as goodwill. That is easy enough as a technical expedient, and formally correct. But it is apt to lead to underestimation of the importance of those expected gains, which, although they lie beyond the horizon adopted for convenience by the economic analyst, are the real cause of the investment under consideration.

Now long-term expectations of this sort are not likely to be as volatile and changeable as, for instance, estimates of the number of

motor cars that will be bought in the U.S.A. in 1956. They may of course prove wrong when the whole pattern of growth of an economy is stunted by a series of catastrophes as in the case of Canada, where many of the high hopes of the first decade of this century have only been fulfilled in the 1950s, or Queensland, which has had a wonderful future for rather a long time now.

What applies to new-plant projects to some extent is even more important for normal industrial investment in modernisation and expansion of existing factories. Again perhaps the general adoption of a distinction for analytical purposes has warped our conclusions. For new investment and replacement are not hard and fast categories. Because a great deal of expansion of output, improvement of quality and reduction of costs of production—some important effects of new investment—can be achieved while replacing worn-out or obsolete plant, a great deal of industrial investment in fixed assets is closely linked with such replacement, and its timing is therefore strongly influenced by technical factors. Of course there is some flexibility; replacement can be postponed as it was very largely in the U.S.A. in the 1931-35 period; but in what I persist in regarding as more normal times, such as the present, less investment is freely variable according to the vagaries of expectations as to the level of demand in the near future.

Again, the idea of profit maximisation in the short run, so useful as a tool of analysis for some problems, has perhaps obscured our view of the process of investment. Although Friedrich and Vera Lutz [8] have shown how theory can be remoulded in terms of growth of asset values, many of us do not yet think easily in such terms. So we tend to under-rate the importance of the motive of improvement of the long-term position of the firm as a cause of investment.

III

Professor Brian Tew [9] has described how in the real world the imperfections of the capital market restrict the amount of finance available to any one firm at one time. The growth in the net assets of a firm, the improvement of its liquid position, the lengthening of the period for which it can show a good record of earnings, all improve its investment status and therefore its ability to raise additional capital. So to some extent these financial considerations reinforce those technical ones leading to continuity in industrial

[8] *The Theory of Investment of the Firm* (1951).

[9] 'The Finance of Investment', *Oxford Economic Papers*, Vol. IV, No. 2, July 1952.

investment. But financial considerations may also cause fluctuations in the rate of industrial investment. It is not easy in general terms to explain exactly how and why this happens. This is a field in which a number of detailed case studies would now be most valuable. Some suggestions can however be made.

Let us consider some of the effects of an orthodox policy of credit restriction imposed to deal with a deficit in the balance of payments on current account. Because there are such compelling reasons for the maintenance of the schedules of many current industrial fixed-investment programmes, and because most of these depend upon forecasts of long-term demand, the immediate impact on them will be slight. It is not a matter of a rise of say 1 per cent. in interest rates causing the abandonment of a number of marginal fixed-investment schemes because they no longer look profitable. Even if the combined effect of the balance-of-payments trouble and the action of the monetary authorities on expectations as to the future level of demand and prices is significant, it will be, at first at least, expectations of the levels of demand and prices for the next six or twelve months that are revised downwards, not for the next decade ; so this will restrict buying for stock, not fixed-asset investment.

The standard argument that credit contraction affects long-term rather than short-term investment rests, of course, on the relative effects of an increase in the costs of borrowing on investment projects, the expected return from which is assumed to remain unaltered. This is quite compatible with the view that in certain circumstances—for instance an adverse balance-of-payments position generally expected to be temporary—credit contraction by the monetary authorities may do more to depress expectations as to the profitability of business over the next year than those of profitability over the next ten years. The reaction of leading British motor car manufacturers to credit restrictions in the winter of 1955-56—reducing current output but continuing with their long-term expansion plans—seems to be an example of this.

Adjustment of stocks is also the first effect to be expected from the deterioration in the liquidity of firms and in the availability of funds which such a restrictive credit policy will entail. As banks try to reduce overdraft limits and to insist on more collateral it will be prudent to expect the rate of payment by trade debtors to slacken ; that that asset becomes less liquid. A sharp fall in security prices may mean that government securities, held as a liquid reserve, if sold immediately would show a distasteful loss. There may be some

tendency to use cash accruals, intended for investment in purchasing stocks, to strengthen the liquid position instead.

Reconsideration and possible postponement of the fixed investment programmes seems more likely when the credit stringency reaches the stage of congestion in the new issue market. Then the difficulty of arranging a new issue of fixed interest securities, combined with the reluctance of bankers to extend, and expand still further, loans granted pending that issue, may cause some slowing down in the rate of investment in fixed assets.

Such a state of congestion did occur in New York in September 1953. Expectations as to the future level of economic activity were turning downward, and it was feared that sudden and substantial reductions of defence expenditure, which would precipitate a recession, were planned by the Government. In the circumstances the normal flow of institutional buying of corporate bonds was checked, and it was reported that underwriters faced heavy losses on $400 m. of new issues. The congestion was in fact relieved by a strongly reassuring statement by the Secretary of the Treasury that defence expenditures would not be cut so sharply as to disrupt the economy. Had it not been, it was highly probable that the failures of the big bond issues and the sharp fall in prices on the stock exchange would have led to a significant fall in industrial real investment.

In the British new issue market in the summer and autumn of 1955, we have seen a succession of failures of issues of fixed interest securities, leaving the underwriters with uncomfortably large holdings, and also a considerable volume of rights' issues of ordinary shares to shareholders.[10] It is difficult to judge the net effect on real industrial investment. Allowing for the fact that the trend of such real investment, as indicated by plans for new factories and extensions, has been rising sharply, it seems that conditions on the new issue market have had some restraining influence. On the other hand it is possible that a public company which finds it difficult to raise money on fixed interest terms, or to obtain additional overdrafts from its bankers, to finance expansion, might decide to adhere to its programme of investment for fixed assets, and to finance it by the issue of ordinary shares to its shareholders instead of by the issue of prior charges to the public. A strong company can raise additional funds in this way even when markets are depressed. Provided it is willing to issue the shares at a low enough price, it need not even have them

[10] New issues by industry in 1955, as recorded in *The Financial Times* of 2nd January 1956, included £140 m. of ordinary shares as compared with £51 m. in 1954; debentures and preference shares, however, only amounted to £103 m. in 1955 as compared with £146 m. in 1954.

underwritten ; so it can by-pass any log jam in the underwriting sector ; it can rely on the premium to ensure that the shares are fully subscribed.

Now directors may be reluctant to impose on themselves and on the other ordinary shareholders of the company the unpleasant choice of putting up further capital at a time of general financial stringency, when the prices of other securities are falling and realisation may be distasteful, or of reducing their share of the equity by selling their rights. That reluctance may, however, be overcome by managerial considerations such as the need of the company to expand in order to maintain its share of the market, or its place in the van of technical progress. Moreover, just as physical investment in fixed assets is often planned for several years in advance, so are some provisions for financing—*e.g.* the British Ford Motor Company current expansion programme—and these seem unlikely to be significantly affected by a period of credit restriction.

The reaction of borrowers and prospective borrowers on the new issue market is therefore not easy to determine in advance. Nor is the effect of credit policy on lenders and purchasers of new securities. The effect of a higher Bank Rate may be outweighed by more favourable expectations and ordinary share prices may rise as they did in May 1955 for instance. Even if a strict credit policy forces down ordinary share prices with gilt-edged, the extent of the curtailment of the flow of funds into the purchase of new securities is uncertain. In a falling market companies coming on to the stock exchange for the first time will not be welcome. Some of them may have to postpone real investment plans because they cannot make their new issues when they hoped to do so. But they constitute a small proportion [11] of total new issues. The bulk of the funds goes to large companies already well known on the stock exchange ; institutions are large and growing investors in the shares of many of these. In the Metal Box Company for instance, as Harold Wincott described recently,[12] holdings of institutions increased from £1·6 m., 25 per cent. of the total in 1938, to £11·2 m., 35 per cent. in 1955 ; and big private investors took up only a small proportion of their rights when a new share issue was made.

Now the effect of a credit squeeze and falling share prices on the individual shareholder is probably in many cases to discourage him

[11] Estimated at 15 per cent.—£6·3 m. out of £43·3 m.—of money made available for industrial real investment by British companies in 1937 (R. F. Henderson, *The New Issue Market and the Finance of Industry* (1951), p. 37, Table 6). No more recent estimate appears to be available.

[12] *The Financial Times*, 17th and 24th May 1955.

from subscribing to new issues or taking up his rights, as he may wish to hold more cash. But the volume of new funds accruing monthly in the hands of the big insurance companies and pension funds is now so great that it seems unlikely that they will choose to make a large or lengthy reduction in the proportion of it that normally flows into industrial financing lest this distort the long-term pattern of their portfolios. For they may find it difficult to buy old securities in the market in large enough parcels, without driving up prices against themselves, to make good a prolonged abstention from participation in new issues. In theory of course a lull in the new issue market might be followed by a spate of issues sufficient to maintain the overall average volume. But no one can be sure that this will happen in practice.

A slight slowing down of the rate of fixed capital investment seems in present circumstances to be the probable result of credit restriction. It does not seem at all likely that, even if the restriction of credit were severe, this would cause a collapse of industrial investment. Even if the effects of such a severe policy included a significant fall in the demand for industrial raw materials, some fall in their prices, and some reduction of employment, it still seems legitimate to expect a high level of industrial investment in fixed assets to be maintained, as in fact it has been in the U.S.A. throughout the recent recessions there.

IV

In its extreme form as the stagnation thesis, the doctrine of the inevitable decline of the marginal efficiency of capital and of investment owing to the accumulation of capital, has now few adherents. It is generally realised that invention and innovation open up new opportunities for profitable investment, and that this may take place as fast as or faster than old ones are used up. But several economists have continued to treat this rather as a *deus ex machina* —welcome but unpredictable—not to be relied on to do more than postpone the day of judgment.

Yet those, such as Professor Rostow, who have been asking why the economies of some countries have grown so much faster than others, have had to look more closely at these processes of invention and innovation, and the results surely are significant for all reflections on investment. It is not just an accident that those economies with a high rate of investment have also a high rate of invention and innovation. That the marginal efficiency of capital has been so persistently high in the U.S.A. for the past ten years that private investible

funds have flowed into the country, not out of it, is not just an aberration.

A wealthy progressive economy, such as the U.S.A., Britain, or Western Germany today, generates inventions and innovations just as it generates investment. The continuous process of expansion and improvement of the fixed assets of industry necessarily involves research and experiment. In the newer industries expanding most rapidly—chemicals, aircraft, gas turbines, atomic energy, metallurgy —the amount of research is of course particularly impressive. A high rate of investment in research produces a big crop of inventions. If research expenditure is on a large enough scale, and well directed, one can apparently count on getting results that will be of value. There does not seem to be any reason why this should not continue. That it will continue, and may accelerate, as it seems to be doing already, is the conclusion of those who fear that the underdeveloped countries may never attract sufficient capital in competition with the industrial leaders in the Western World. This poses some difficult problems. But if we are to worry about them, ought we not logically to stop worrying about the possibility of a failure of the rate of invention and innovation to keep up the rate of investment in the wealthy countries?

So long as we are all looking over our shoulders for the spectre of a sudden collapse of industrial investment, we seem unlikely to be able to cope effectively with the real and present dangers of inflation. Governments will continue, as successive British, Australian and New Zealand Governments have done since 1945, to err consistently on the side of inflation in their regulation of the economy with the result that sterling is subject to recurrent crises.

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THE PROFITABILITY OF THE SCOTTISH NOTE-ISSUES

From time to time the question is asked, 'What is the right of note-issue worth to the Scottish banks?' To give a precise answer to this we would need far more information than is available, perhaps more than the banks themselves possess. But some light can be thrown on it by analysing the factors involved; and using such figures as we have, supplemented by some guesses and estimates, we can make a tentative estimate of the profits of note-issue which may well show the rough order of the amount involved. Also, quite apart from the value of a quantitative answer, a full discussion of this question takes us through some interesting features of Scottish banking.

The profits derived by any bank from its note-issue equal the difference between the gross income earned on the issue, and the costs of maintaining and administering it. The size of the gross income will depend on the amount and the composition of the income-earning assets which the bank is enabled to hold because it issues notes. This will be examined in the following section, and from there we shall go on to attempt an estimate of the profits of the note-issues in 1954. In a third section some objections to this estimate will be considered. Finally, some possible changes in the present system of issue will be discussed.

I

Note-Issues and Assets

The power to issue banknotes enables the Scottish banks to hold an amount of assets greater than they would hold were they restricted to deposit banking alone. It is clear that, at any time, this extra quantity of assets cannot be smaller in amount than the volume of the note-circulation at that time. When a note is passed into circulation it is given either to acquire an asset (*e.g.* a customer's overdraft) or, more commonly today, to reduce a liability of the bank (*i.e.* a customer's deposit balance). In the latter case there is, as it were, a transference of an asset from matching the deposit, to matching the note. Thus, in their note-issuing activities, the banks will always acquire an amount of assets equal to their note-circulations.

But what of the *composition* of this block of assets held as a result of note-issue? If the circulation of notes had no effects on the kinds of assets held by the Scottish banks one could assume that the composition of this segment was the same as that of the whole. But the note-issues do have one very important effect on the composition of assets, and there is possibly a second, minor effect.

The first effect of the Scottish note-issues is on the proportion of cash within the total of assets.[1] For all practical purposes the total cash holdings of the Scottish banks are determined by their note-circulations. This arises from the statutory requirement that (apart from a now negligible fiduciary issue) the banks must hold Bank of England notes, one for one, against their own notes in circulation with the public. This legal-tender cover for Scottish banknotes—which must be held at either of two offices in Scotland, or at the Bank of England—accounts for about four-fifths of the total cash holdings of the Scottish banks.[2] Its amount is determined by the volume of Scottish notes in circulation, over which the banks exert no control. The remainder of the cash holdings consists primarily of balances held in London, partly with the Bank of England and partly with Clearing Banks, but there is a small amount of legal tender held in excess of cover needs. The London balances are determined by working needs, and their ratio to deposits—under 2 per cent. in the aggregate—does not appear to vary much over time. Altogether, the non-cover elements of cash are less than 3 per cent. of deposits.

The major determinant of the proportion of cash within total assets is the relationship between the note-circulation and the level of deposits. If there is a *relative* rise in the note-circulation, because of a *relatively* higher demand for currency by the public, the cash ratio rises. Since 1939 the aggregate cash ratio has ranged between 10 per cent. and 14 per cent. owing to this cause.[3]

How does this fact affect the composition of the segment of assets held by the banks on account of the note-issues? It may do so in this way: today the ratio of total cash to deposits is about 14 per cent.; if, in the absence of the note-issues and therefore of the need to hold cover, the banks would keep a cash reserve of (say) 8 per

[1] This passage summarises the conclusions of an earlier article by the present writer: 'The Note-Issue in Modern Scottish Banking', *Scottish Journal of Political Economy*, Vol. I, No. 2, pp. 154-73.

[2] Aggregates of the liabilities and assets of the Scottish banks can only be approximate in that they must be totalled from annual balance sheets which appear at different dates between the end of September and the end of February. Exceptions to this are note-circulations and holdings of Bank of England notes and coin, for which four-weekly averages are published in the *Scottish Bank Return*. The 'cash' item in balance sheets varies slightly in scope; in totalling them, balances with English banks, where they are shown separately, have been included. There is one exception to this: the Clydesdale and North of Scotland Bank shows balances with its parent English bank of about 11 per cent. of deposits (in addition to a cash total of normal size), and these are taken to have more of the nature of short loans than of perfectly liquid balances. Their size may be connected with the almost complete absence of bills among the assets of this bank, but the date of the balance sheet—31st December—may also play a part.

[3] See Gaskin, *op. cit.*, p. 165, Table II.

cent., then the note-issues can be regarded as causing an excess cash holding equal to 6 per cent. of deposits, and the assets attributed to the note-issues would have to be 'weighted' accordingly. We do not know what cash reserves the Scottish banks would hold if they ceased to issue notes, but it is reasonable to suppose that in this event their practice would be similar to that of the English Clearing Banks; quite apart from contiguity there is a considerable overlapping of ownership between them. We must therefore ask, 'What cash reserves, by English standards, would a non-note-issuing Scottish bank hold?'

The average cash reserves of the English banks are a little over 8 per cent. of deposits. They comprise two things: balances with the Bank of England, forming rather more than half the total (or 4 - 5 per cent. of deposits), and currency held in tills. What amounts of these two types of liquid asset would a Scottish bank be expected to hold? To take central balances first, it is arguable that the Scottish banks could manage with smaller central balances than the English banks,[4] and the comparison of present ratios might appear to confirm this. But it cannot be assumed that the balances held with the Bank of England by the Clearing Banks represent their minimum working needs. Some part of a bank's cash reserve is held over and above working needs as a precautionary reserve, and in English banking this is held with the central bank. With the Scottish banks some fraction of the funds at present serving as note-cover fills this rôle, and in the absence of the note-issues it would result in their having to hold proportionately higher central balances than they do now.

But there is another, more important, reason why they would do this. The holding of balances with the central bank by the commercial banks, facilitates the exercise of monetary control by that bank, and also makes a contribution to the resources it needs for its controlling function.[5] The Scottish banks, because of their separate evolution as note-issuing banks, carry a relatively small share of this burden; we must assume that if they ceased to issue notes they would have to increase the proportion of their resources entrusted to the Bank of England to about the same as that of the English banks, say 4½ per cent. of deposits.[6]

[4] See Gaskin, *op. cit.*, p. 163.

[5] Cf. Cmd. 3897, *Report of the Committee on Finance and Industry* (H.M.S.O., 1931), p. 158. Bankers' balances with the Bank of England carry no interest.

[6] There is the complication, however, that part of the central balances of the Scottish banks is held with Clearing Banks. These balances have to be regarded as forming part of the total of central balances assumed necessary in the absence of the note-issues.

This leaves us to determine the amount of till-money. At present the coin and Bank of England notes held by Scottish banks in their branches are less than 1 per cent. of deposits. The smallness of this total is possible only because the greater part of till-money needs is met by holding stocks of the banks' own unissued notes in tills. Scottish notes require legal-tender cover only when they cross the banks' counters, so that till-money, since it is a fund which through time stays within the bank, can be supplied to any extent at no other cost than that of printing the notes. In the absence of the note-issues, tills would have to be stocked with Bank of England notes. This would simply mean a diversion of legal tender now serving as cover to till-money, but it is important to estimate what proportion of deposits would need to be held in this way. For example, could the Scottish banks manage on a 3½ per cent. ratio?

So far as one can judge, the till-money needs of Scottish banks in the absence of the note-issues would be relatively greater than those of English banks. On average, bank branches are smaller in Scotland than in England, measuring size here by the average amount of deposits. Over the three years 1952-54 the average Scottish bank branch held only two-thirds of the deposits lodged with the average English branch.[7] The higher volume of branch deposits in English banking means that the average turnover of business is higher. As till-money needs almost certainly do not increase proportionately with turnover, since the risk of undue withdrawals of cash will decline relatively, the English bank branches can probably manage on a smaller proportion of till-money to deposits than could the Scottish banks were they to cease issuing notes. (There may be a counteracting factor in a possibly higher proportion of time deposits within total Scottish bank deposits, but we shall ignore this.)

Over the three years 1952-54, the average English bank branch

[7] The figures on which this calculation is based are as follows:

System	No. of branches	Average total deposits	Average deposits per branch
		£ m.	£000s
Clearing Banks	9,794	6,278	641
Scottish Banks	1,794	792	441

Numbers of branches are taken from C. G. D. Tennant, 'The Structure of Scottish Banking', *Scottish Bankers' Magazine*, January 1952, and refer, presumably, to the position in 1951. Clearing Banks' deposits are averages of the annual figures given in the *Monthly Digest of Statistics*. Scottish banks' deposits are the average of three balance-sheet cycles, each of which is totalled as described in footnote 2, p. 189.

held £22,000 of till-money.[8] If we assume that the average Scottish branch would need five-sixths of this amount (being two-thirds the size of an English branch) the total till-money of the Scottish banks in these years would have been equal to a little over 4 per cent. of deposits. If we add this to a reserve of central balances equal to 4½ per cent. of deposits we arrive at a total cash reserve, appropriate to the Scottish banks in conditions of non-issue, of about 9 per cent. Let us raise this to 10 per cent. to allow liberally for all the special needs of the Scottish system. It is now apparent that the current level of cash reserves—in the region of 14 per cent.—is considerably higher than would be necessary in the absence of the note-issues. The excess in the proportion of cash must be attributed solely to the note-issues.

There is one other minor way in which the note-issues may affect the composition of assets: they may cause the banks to hold rather more short-term assets, compared with higher-yielding assets, than they would otherwise need to do. For the Scottish banks short assets largely mean money-at-call, since they hold relatively few bills. The proportion of such assets shown on balance sheets is very much lower than that of the Clearing Banks, something like 10 to 12 per cent. of deposits being customary. However, this proportion is probably even higher than it would be in the absence of the note-issues, since seasonal variations in the note-circulations, with the accompanying changes in cover needs, are met by corresponding changes in the amount of money market loans.[9] The extra amount of such assets that the banks hold may be estimated very roughly at half the average maximum seasonal variation in their note-issues. The cost involved will be the difference between the yield on this amount of short-term assets and the yield on an equal amount of the more remunerative assets that could be substituted for them. We can take account of this by regarding the assets held against the note-issues as being weighted in favour of money market assets as against earning assets of higher yield.

[8] The till-money of the Clearing Banks is taken as their total holdings of Bank of England notes and coin as shown in the monthly figures of the currency circulation. The average for these three years was £220 m.

[9] On the practice of meeting variations in the note-issues by changes in money market assets, see F. S. Taylor, *Banking in Scotland* (Institute of Bankers in Scotland, 1949), p. 50. A wider question may occur to the reader at this point: if the Scottish banks held a smaller cash ratio, would they need to increase their short assets to maintain some overall level of all liquid assets? The answer is probably negative: before 1939, when the average cash ratio was about 10 per cent., the ratio of short assets was no higher than it is now.

II

An Estimate of the Profits of the Note-Issues in 1954

Having arrived at some conclusion as to the effects of their note-issues on the amount and composition of the Scottish banks' assets, we can proceed to an estimate of the gross yield of those issues. Once this is obtained the net yield would be arrived at by deducting the costs of maintaining the issues. These comprise the payment of licenses and stamp duty, the cost of manufacturing the notes, and the costs of clearing them (no Scottish bank re-issues the notes of other Scottish banks). I have no satisfactory information about clearing costs, but, if we carry the calculation up to the point where they should be deducted, we can determine the amount below which they must lie if there are to be any profits from the note-issues, and something can be said about their probable relation to this limit.

The average total circulation of Scottish banknotes during 1954 was £96 m. (in round figures). This measures the amount of assets held by the banks on account of their note-issues. The aggregate cash reserves of the banks, as summed from annual balance sheets appearing between September 1954 and February 1955, was £116 m.[10] If we assume that in the absence of note-issues cash reserves equal to 10 per cent. of deposits would have been held, these would have amounted to £83 m. Hence the amount of cash held solely on account of the note-issues was £33 m. Deducting this from the total of assets held against note-issues, we arrive at the amount of earning assets so held—£63 m. Thus the gross income from the note-issues was the yield on £63 m. of earning assets, and it was at a rate which was a weighted average of the rates of yield on the various classes of assets composing the total.

There are three groups of earning assets: short loans to the money market and bills, advances, and gilt-edged securities. In the balance sheets of 1954-55 the aggregate distribution of earning assets among these three groups was in the ratio 3:6:11. The total of £63 m. must be divided in these proportions, but with an adjustment to take account of the effect of seasonal variations in the note-issues on the proportion of money market assets. It was estimated that this effect is equal to half the average maximum seasonal variation of the note-circulation. Over the eight years 1946-53 the average maxi-

[10] See footnote 2, p. 189. Of course it is possible that this total contains a bit of window-dressing. I doubt if this happens to any significant extent: the margin between cover needs and total cash seems small enough as it is. There is a further possibility, the note-cover itself may be window-dressed; but it is doubtful if this happens either (see footnote 17, p. 198).

mum variation was £8 m., so money market assets will be increased by half this amount, and advances and securities correspondingly reduced.

We can now set out the composition of the earning assets held against the note-issues in 1954 (in round figures):

	£ m.
Money market assets	13
Advances	18
Investments	32
Total	63

By applying the appropriate rates of yield to each of these asset totals, we can obtain a rough figure for the gross yield of the note-issues. Money market assets consisted of call-money and bills, mainly Treasury Bills, in the proportions of three to one ; in 1954 the average rate of yield on these assets was 1½ per cent.[11] The rate on advances is more difficult to assess: the published rates vary according to the type of loan (*e.g.* whether overdraft or cash account), and, in any case, they are only minimum rates. Here we shall take the average rate on advances as 5½ per cent., this being the rate on overdrafts—the highest of the rates—during the year.

The rate of yield on securities presents even greater difficulties and calls for yet more heroic assumptions. A reasonably accurate calculation would require knowledge of the composition of portfolios, as well as of the prices at which the various stocks were bought. Even then there would be the complication of capital gains and losses.[12] The only information we have is the names of the various stocks held by six of the (then) seven banks, as given in their statutory half-yearly statements. Using this, and the inevitable assumptions, we can get an answer. First, we list the stocks declared in the statements ; then we assume that each stock was bought at its issue price, and calculate the rate of yield on this ;[13] finally, making the further

[11] For call-money the average rate for day-to-day money has been used ; for Treasury Bills, the (weighted) average of the rates at the weekly allotments was taken.

[12] Mainly gains, since the banks are not often compelled to realise securities at a loss.

[13] Only the simple, not the redemption, rate of yield is used here: capital gains on stock bought below par are ignored. In the actual calculation the rare undated stock was counted at its nominal rate, (Consols taken as 4 per cents.). In one or two cases, where the year of purchase was identified and differed from that of issue, the middle price of this year was taken. Guaranteed stocks were included at 3 per cent.

assumption that each bank divided its portfolio equally among the stocks named in its statutory statement, we weight the rate of yield on each stock by the number of mentions it gets in all the statements. The result, using the statements of mid-1954, is $2\frac{7}{8}$ per cent.; if we consider that the majority of the stocks, and those with the most mentions, were short-dated securities yielding between 2 and 3 per cent., this seems reasonable. We can now apply these three rates of yield to the relevant amounts of earning assets. The result is a total of £2·1 m.: [14] this represents the gross earnings from the assets held on account of the note-issues in 1954.

To arrive at net income two sorts of costs should be deducted from this figure—the cost of administering the assets held, and the actual operating cost of the note-issues themselves. The costs of administering assets are likely to be significant only in the case of advances, and as there is no means of estimating them they will have to be ignored here. Of the operating costs of the note-issues, stamp duty and licenses present the least difficulty, although here the cost of licenses can only be estimated. Stamp duty, at the rate of 8s. 4d. per cent. of average annual circulation, cost £400,000 on the circulation of 1954. As for licenses, the position is that each bank must hold one, costing £30, for each place (*i.e.* town or village) in which its notes are issued, with the proviso that four licenses cover all places in which it was issuing notes in 1845. We can make only a rough estimate of this cost. Assuming that the issue of notes by each bank in all towns of more than 10,000 inhabitants is covered by four licenses, and that separate licenses are required for each of the remaining branches, we get a total charge for licenses of some £31,000.[15] Deducting this and the stamp duty from the gross revenue we are left with a total of some £1·7 m. If the Scottish banks are to derive any profit from their note-issues the remaining costs—of manufacturing and clearing—must come to less than this. To put this in a way which for immediate purposes is more useful, they must not exceed about $4\frac{1}{4}$d. per £1 of average annual circulation.

Costs of manufacturing are not high, although more than half the

[14] At this level it is necessary to make use of one place of decimals although the original figures were rounded to the nearest million.

[15] The number and distribution of branches used here are taken from C. G. D. Tennant, *op. cit.* According to Tennant there were 799 bank branches in towns of more than 10,000 inhabitants, and 965 branches in other places (presumably at some date in 1951). In calculating the cost of licenses to cover places in which notes were issued in 1845, account must be taken of the fact that in that year there were nineteen banks, of which all but two survived, through amalgamations, in the seven banks of 1954. The cost of licenses to cover the original places of issue has therefore to be taken as seventeen times £120.

Scottish note-circulations consist of notes of £5 and above which are more expensive than £1 notes. However, to counteract this, the bigger notes probably live longer. Calculated as a rate per £1 of annual circulation the figure of ½d. would almost certainly cover the costs of printing notes. This leaves about 3¾d. per £1 of circulation, to cover clearing costs and provide profits.

It is doubtful if the banks have any precise idea of clearing costs. Much of the work involved is carried on as part of the general duties of branch staffs. Bankers themselves tend to stress the heaviness of this cost. I have heard the view that it costs as much to clear a note as a cheque—but this can hardly be the case since a note involves no ledger work, it may not have to travel so far, and there are few overheads attributable to note-issue. The charge made by the banks for cheque collection is 6d.; some think that the actual cost exceeds this, but let us accept it and assume that it costs only one-third as much to clear a note. Two facts need to be considered in estimating the costs of note-clearing. The first is that the volume of note-clearings will exceed the annual average circulation of notes. The second is that the high proportion of notes of £5 and above (currently in the region of 60 per cent. of the value of the annual circulation) will reduce the actual number of notes to be cleared. On the basis of a rough figure that I have been given of what one bank sends to the daily note exchange, it appears that the annual amount of notes cleared, by value, is not less than twice the average annual circulation, and may be as much as three times that amount. However, the actual number of notes cleared probably exceeds the number of pounds sterling of annual circulation only by upwards of one-half.

Thus, assuming that it costs 2d. to clear a note, the cost of clearing, per £1 of annual circulation, would not be less than 3d. This would indicate a net income of about ¾d. per £1 of annual circulation; on a circulation of £96 m. this represents a profit of £300,000. It is interesting to compare this with total profits. The aggregate *declared* profits of the banks in the balance sheets appearing between September 1954 and February 1955, before tax,[16] were just over £6 m., but, as there were probably some undisclosed appropriations to reserve, this is a minimum figure. A note-issuing profit of £300,000 would thus be not more than 5 per cent. of total profits, and probably less. But in 1954 the proportion of notes within total liabilities to the public (notes plus deposits) was 10 per cent.; and since notes are, in a sense, an 'interest-free deposit' one would expect them to

[16] Reckoned as income tax at the standard rate, and profits tax at the distributed and undistributed rates, on the *declared* net profits.

make at least a proportionate contribution to profits. This may indicate that our assumption about clearing costs puts them too high. If the note-issues contributed 10 per cent. of the profits in 1954, this would be equivalent to 1½d. per £1 of annual circulation. In this case the cost of clearing a note would have to be about 1½d. and this seems to be getting rather low. On balance, therefore, the conclusion here is that the Scottish note-issues yielded a profit in 1954, but that it was less, perhaps considerably less, than proportionate to the size of the note-issues within total liabilities.

There will be no need to stress the reservations with which even this limited conclusion must be surrounded. Not the least is the fact that it is based on aggregate figures which iron out differences between banks in the relative sizes of their issues and in the composition of assets. However, the calculation does illustrate the principles on which such an estimate must be made, and it does show within a reasonable range of error the magnitudes of the sums involved.

III

Some Objections Considered

The conclusion that the note-issues may not be making a proportionate contribution to the net income of the Scottish banks raises the question, 'What can they do about it?' But before we explore this, there are three possible objections to the calculation of profitability made here which must be considered.

The first raises a statistical point. The figure of note-circulation used here is the annual average based on the figures in the *Scottish Bank Returns*. The *Return* is published every four weeks and the circulation figure recorded is the average of the circulation on four consecutive Saturdays. This figure may overstate the true average circulation through time, for two reasons. First, the circulation total in the *Return* will include a quantity of notes held by the banks (*i.e.* each bank holding notes of the others) and not by the public. The amount involved will not be large since there is a note exchange on a Friday afternoon ; from the rough figure, already referred to, of what one bank sends to the daily note exchange, I would put this amount at less than 1 per cent. of the recorded circulation.

Secondly, the *Return* figure probably overstates the true average because the week-end almost certainly brings a peak in the note-circulation because of wage payments. If this is so, and we take the *Return* circulation as a measure of the amount of assets held on

account of the note-issues, we shall be overstating these assets. The effect of a week-end peak would be to raise the level of cash holdings over time, since it is the Saturday circulation that determines the cover need. If, as appears to be the case, the banks do not vary their cash with their note-circulation over the course of the week,[17] then the effect of the weekly fluctuation is to raise the average level of cash holdings. Now the resulting level of cash reserves, although determined by the peaks, should be offset, not against the peak circulation, but against the true average, because it is this that determines the total amount of assets held on account of notes. What this means is that by using the *Return* figure to measure the assets held on account of notes, we overstate the amount of *earning* assets attributable to the note-issues. I have no information about this weekly variation, and it is doubtful if the banks themselves have any precise idea of its extent. It may not be very large. If it exists some reduction would have to be made in the estimate of profit in Section II. For example, if the Saturday circulation was on average as much as 10 per cent. above the lowest point of the week, the amount of earning assets attributed to the note-issues would have to be reduced by approximately 5 per cent. of the average *Return* circulation. On the circulation of 1954, and at the yields used in Section II, this would reduce the estimated net profits by about £150,000. The actual effect is possibly not as great as this ; but whatever its scale it strengthens the conclusion that the note-issues do not make a proportionate contribution to profits.

The second objection again concerns the amount of assets regarded as being held on account of the note-issues. The fact is that, indirectly, the existence of the Scottish note-issues causes the volume of bank credit to be rather greater than it otherwise would be. The Scottish banks hold Bank of England notes, one for one, against their own circulations, but this note-cover serves a reserve function in that, if the note-issues were surrendered, at least part of the cover funds would have to be retained as cash reserves (though not all in currency form). From one point of view the Scottish banks might be regarded as issuing notes 'against' their cash reserves (or part of

[17] It appears so because if the Scottish banks regularly withdrew cash from the market each week-end the fact would probably have been noted somewhere, and one sees no reference to it. Another possibility is that weekly maturities of Treasury Bills might be arranged to provide week-end funds. A correspondent on the spot doubts if the variation of the cover funds in any of these ways is customary, or indeed permitted.

them).[18] This means that if Scottish notes were withdrawn from circulation it would not be a case simply of replacing them with the Bank of England notes now held as cover. The Scottish banks would continue to hold an amount of cash equal to a considerable proportion of the present cover-funds. As a result, assuming no compensating increase in the Bank of England issue, there would be a net contraction in the currency in circulation with the public. Since there is a definite relation between the supply of currency and the volume of bank credit, this contraction would tend to cause the volume of bank credit to decline. But this would affect the whole British banking system, since the small extra volume of credit attributable to the Scottish note-issues is not confined to Scotland. The monetary relationships between the various regional sectors of the British banking system are determined by the underlying 'real' relationships between the regions: the extra credit expansion of the Scottish system will spill over into the system at large. It means that the whole banking system carries a rather larger volume of assets and liabilities than it would in the absence of these note-issues.

In a sense any net income derived by the Scottish banks from this extra amount of assets should be attributed to the note-issues. But it is surely realistic to assume that, were the Scottish banks to surrender their note-issues, the issue of the Bank of England would be increased and any contraction of bank credit avoided. In that event the surrender of the note-issues would involve the Scottish banks in a reduction of their assets by an amount equal only to their note-issues. The effect of this would be to reduce their net income by the profits of the note-issues as defined and calculated here.[19]

[18] This approach is adopted here for simplicity and brevity. The actual way in which the Scottish note-issues impinge on the volume of credit is rather more complicated. The effect of the note-issues, and of the reserve practices that go with them, is to reduce the 'operative' cash ratio of the Scottish banks (*i.e.* the ratio that controls their day-to-day operations, and hence determines the effects of these on the credit structure) to the very low ratio of London balances. It is the relative lowness of this ratio, rather than the actual emission of notes, that causes their operations to be relatively more expansive of credit than those of the English banks. A cessation of the note-issues and the adoption of, say, a 10 per cent. cash ratio would constitute an increase in the 'operative' cash ratio, and so work to reduce the quantity of credit.

[19] Any attempt to include in the profits of the note-issues the income on deposits attributable to the Scottish note-issues meets the difficulty that the existence of these deposits (and indeed of the notes themselves) introduces a monetary change which has effects, however slight, on the price level. This makes it difficult to assess the effects of an uncompensated withdrawal of the Scottish note-issues.

It must be conceded that, in excluding an element of profit arising from the credit effects of the note-issues, we are, to some (slight) extent, limiting the concept of profitability used here.

The third objection arises from the fact that the Scottish banks make use of unissued notes as till-money.[20] This has traditionally been regarded as an important advantage of the right of note-issue in that it gives them a source of 'cheap' till-money.[21] Further, it is also suggested that, without it, the Scottish banks would be unable to maintain many of their smallest branches.[22]

There are two questions that must be kept apart here. First, is there a *general* advantage from the use of unissued notes in tills, and, if so, what allowance should be made for it in estimating the profits of issue? Secondly, is there a special advantage in the case of small branches, and, if so, what is its nature?

Clearly a general advantage is possible: by using its own notes in tills a bank economises legal tender, and this permits it to hold a higher proportion of earning assets. But does an advantage of this kind exist at present? Earlier we concluded that a cash ratio of 10 per cent. would make liberal provision for all needs, including till-money needs, of the Scottish banks. The fact that actual cash holdings are running well above this figure means that no advantage of this kind—consisting intrinsically of a reduced need to hold cash—can be said to exist.[23] Thus the estimate made on the basis of a 10 per cent. ratio does not require any amendment on this account.

What of a special advantage in the case of the smallest branches? Is there any, and has it any bearing on the estimate of profitability? The argument is that the cost of supplying legal tender for the tills of these branches would cause them to run at a loss. The till-money needs of small branches are undoubtedly high in relation to the deposits lodged in them, because of the proportionately greater risk of net withdrawals of cash on a small business turnover. But this is not the point that has been raised: the implication seems to be that

[20] See above, p. 191.

[21] The nineteenth-century Scottish banker regarded it as the major advantage since he argued that his 'excess issue' (*i.e.* the issue in excess of the fiduciary amount) merely involved the holding of profitless cash: see, *e.g.*, *Select Committee on Banks of Issue 1875, Minutes of Evidence*, Q. 43.

[22] See, *e.g.*, F. S. Taylor, 'Differences in Scottish and English Banking—I. The Note Issues', *The Banker*, December 1950, pp. 371-2. It is pointed out there that more than half the Scottish bank offices are in places with less than 5,000 inhabitants.

[23] If we were comparing the present position with a situation in which the banks issued notes against legal-tender cover, but were debarred from using unissued notes as till-money, then clearly there would be a 'till-money advantage' in the present position. But in fact this is not, and never has been, a possible alternative. The use of unissued notes in tills has always been considered an essential concomitant of the note-issues, and the effective alternative has always been a complete cessation of the issues.

some branches may be so small that the cost of any legal-tender till-money would tip the scales from profit to loss.[24]

The same answer can be given here as in the previous case: that, in the estimate in Section II, the assumed cash ratio of 10 per cent. contained an allowance for till-money needs based on the average size of Scottish branches, including, of course, the smallest branches. If 10 per cent. was adequate, the estimate based on it is unaffected by the relatively high till-money needs of small branches. If it was inadequate, which I doubt, then a higher ratio would have to be allowed; but as long as this ratio did not exceed the present actual ratio of cash holdings—and it could hardly come anywhere near it—the banks cannot be regarded as deriving any advantage from the use of 'cheap' till-money.

But, admittedly, this is not all that can be said on this question. The precise effect of the Scottish right of note-issue, and the use of unissued notes as till-money that goes with it, seems to be this: it converts what is normally an avoidable cost of branch operation into a fixed cost. The holding of legal tender for cover purposes entails the holding of far more of this asset than the banks would need to hold without the note-issues, but it is unaffected by the size of branch offices, and hence, from that point of view, becomes a fixed cost. If the Scottish banks surrendered their note-issues they would be able to supply all their till-money needs from a cash reserve of about 10 per cent. But in this situation the incidence of till-money costs would be felt directly in the branches; such costs would become avoidable; and it might well be found that net revenue could be increased by closing certain branches.

What bearing has this on the estimate of profitability made here? It means that it may not indicate the full financial effects of a cessation of the note-issues. But within its assumptions, of which the exclusion of structural changes in the branch systems must necessarily be one, it is a valid estimate, and a necessary step in any attempt to analyse the question of the benefit derived from the note-issues. In a full assessment of this benefit, such as might form the basis of a decision whether or not to continue the note-issues, the further effects arising from any structural changes likely to ensue would have to be brought in, but at a later stage. We can note here that if such structural changes would follow this would lead, on a full assessment, to a reduction in the estimate of note-issuing profits made in Section II.

[24] But this position must resolve into high *unit* costs owing to indivisibilities, either 'real' (staff, equipment, etc.), or financial (till-money). Probably both will be present.

IV

Possible Changes

In what ways might the present system of issue be altered? One possibility is that the banks might cease to issue notes. The estimate made here does not suggest any reason why they should do this since it points to a positive income from the note-issues. It is true that we have found a possible offset to this, of indeterminate size, should the cessation of the note-issues lead to a contraction of branch systems. But it is not unlikely that the banks would rule out such a change on other grounds, *e.g.* the welfare of the communities involved. If this is so the case for retention is clear.

A second course the banks might take would be to restrict their note-circulations. This would reduce their cover liability, and their cash holdings could be brought down to a level nearer to what they would maintain in the absence of the note-issues.[25] Up to this point the banks would simply be substituting Bank of England notes, now held as cover, for their own notes ; the gain would come from reducing the costs of maintaining and clearing the issues. This would increase the rate of profit per pound of circulation, and raise the contribution, absolute and relative, of the note-issues to total profits.

The restriction of the note-circulations would raise certain problems. To keep their issues below any given level the banks might have to restrict the number of offices at which they issued their own notes.[26] This would increase the need for legal tender in tills since some branches would issue only Bank of England notes ; and, under present statutory rules, the change would reduce the proportion of cash available to serve as cover.[27] This could be minimised by confining the issue of Bank of England notes to large branches since these require to hold proportionately less till-money than small branches. In this event restriction of the note-circulations would probably not raise any question of contracting the branch systems. An important point, however, is that so long as the practice of clearing notes is maintained no single bank would gain much by restricting its own issue. This leads to the final possible change in present practice.

It is clear that a major element limiting the profitability of the note-issues is the fact that the banks operate their issues like a cheque system, and not like a simple currency. Costs, possibly heavy ones,

[25] In other words it would eliminate the *excess* 'excess issues' (see footnote 21, p. 200).

[26] This was how the English banks of issue kept within the limits imposed on their issues by the Bank Charter Act of 1844.

[27] For each bank cover can be held at only three places : see above p. 189.

are incurred which cannot be recouped by charges. The simplest way to make the note-issues more profitable would be to eliminate the clearing of notes. This could be done without any change from the present system of individual issues, but it might be more acceptable to the banks if the issues were standardised.

The note exchanges were once regarded by Scottish bankers as an essential part of their system, an institution preventing a general overissue of notes.[28] In fact such exchanges could not prevent the system as a whole from overissuing, but they did impose a check on individual banks. Today, with notes an entirely subsidiary medium, the question does not arise; but the exchanges do play a part in keeping the banks' holdings of one another's notes to a minimum. Without them the banks would find themselves holding a higher average volume of other banks' notes, and having a higher circulation of their own. This would reduce the gross yield of the note-issue since it would, in effect, amount to an increase in the non-earning assets held on account of the note-issues. It could be avoided only by some change in the cover regulations.[29]

V

Conclusion

We can sum up by contrasting our findings with the views of nineteenth-century Scottish bankers. They held that their note-issues in excess of the fiduciary amounts brought no return as they simply involved the holding of a non-earning asset, legal tender; the main advantage of the note-issues lay in cheap till-money. The conclusion of the present discussion is that, today, there is no return attributable to the note-issues through economy of till-money. The possible significance of the note-issues for the maintenance of small branches is not denied, but any effect of this kind arises from the conversion of an avoidable into a fixed cost, and not from a simple reduction in cost. On the 'excess issues', which today constitute practically the whole of the circulation, we conclude that there is a gross profit up to the point where the cover liability, together with London balances, are equal to what the banks would hold, as cash reserves, if they did

[28] In the nineteenth century there was a difference of opinion on this question between English and Scottish bankers: see J. Viner, *Studies in the Theory of International Trade* (1937), pp. 239-40. As Viner points out, the real check on a general overissue by the Scottish banks was the state of the exchange on London.

[29] *E.g.* by a change permitting the banks to deduct from their circulations the amount of Scottish notes held by them. This was suggested by D. Cameron in a letter published in the *Scottish Bankers' Magazine*, July 1918.

not issue notes. Beyond this, on the *excess* ' excess issues ' as it were, there is no income, only costs. As to net profit, we conclude that there is one, but that it is relatively low having regard to the ratio of the note-issues to the total resources controlled by the banks. If the banks wish to increase this profit they should eliminate the clearing of notes ; if they wish to maximise it they should also restrict their issues to that level which compels them to hold cash reserves no greater than they would need in the absence of the note-issues.

M. GASKIN

Glasgow

MALTHUS'S THEORY OF DEMAND AND ITS INFLUENCE ON VALUE THEORY[1]

THE major events in the development of Malthus's theory of demand were by-products of his controversies with Ricardo concerning other matters. In the bullion and corn-law controversies Malthus's efforts to convince Ricardo that demand could affect the rate of profits were unsuccessful. When Malthus's *Principles* appeared it contained a new concept of demand which measured the varying wants and tastes of the people. These, which he had been stressing all along, now assumed new importance because of their rôle in the theory of gluts which the *Principles* presented. Continued efforts to support his position concerning gluts led to the measure-of-value controversy and thence to changes in Malthus's value theory which weakened his emphasis on demand.

THE FIRST TWO DECADES

Malthus's theory of value had its textual roots primarily in Smith and Lauderdale, and its immediate historical roots in England's troubled times during the first three decades of the nineteenth century: war-time inflation, agitation for corn-law reforms, and post-war depression.

Malthus considered himself the spiritual descendant of Adam Smith, presenting the true doctrine in opposition to the distortions imposed by Ricardo. However, the features of his thought that most distinguish him from the Ricardians are those that remind us of Lauderdale[2]—his emphasis on demand, and his insistence that the aggregate demand for consumers' goods may be diminished by excessive accumulation. Emphasis on demand characterised Malthus's thought from the beginning, but, though references to the 'caprice of fashion' and miserliness as causes of unemployment can be found prior to the appearance of Lauderdale's volume, in that early period Malthus could also write that '. . . Smith has very justly observed, that . . . every frugal man was a friend, and every spendthrift an enemy to his country . . . .' Though Malthus charged Smith with error in representing every increase of the revenue of the country as an increase in the demand for labour, instead of raising the objection

[1] I should like to express my appreciation to Professor F. S. Deibler, who first called my attention to the change of emphasis that occurred in Malthus's value theory.

[2] James Maitland, Eighth Earl of Lauderdale, *An Inquiry into the Nature and Origin of Public Wealth* (Edinburgh, Constable and Co., 1804).

that surplus revenues would not be applied to the demand for labour, his argument at this time was that the real demand for labour was limited by the produce of the land.[3]

The population problem called forth Malthus's first statement on demand. In the *Essay* he had remarked that the poor law accomplished little by increasing money grants to the poor when grain prices rose, without increasing the quantity of food.[4] In *An Investigation of the Cause of the Present High Price of Provisions,* discussing the inflationary results of increasing parish allowances when corn prices rose, he demonstrated the point vividly. The argument ran as follows: when a commodity is scarce, the natural price is forgotten, and the actual price is regulated by the excess of demand over supply. Suppose there are fifty demanders, and only enough of a good for forty people. Considering the demanders as arrayed in increasing order according to their maximum offers, the price would have to be high enough to exclude the ten whose offers were least. If the fortieth from the top could just pay two shillings, two shillings would be the price. But let each of the ten poorest be given a shilling, and all now be able to offer two shillings or more, and the price would have to rise. Now, however, some of the poorest of the unsubsidised forty would be excluded in favour of some of the subsidised ten.[5] To make his point Malthus had developed a market demand schedule—a schedule of demand prices like that in Böhm-Bawerk's horse market example, each buyer taking but one unit of the good.

His purpose did not require him to consider an individual's adjustment of the quantity purchased in accordance with the price, though Malthus was aware of a relationship between price and consumption.[6] Here the limitation of incomes sufficed as an explanation.

The demand schedule never reappeared, but Malthus continued to insist on the importance of demand. When the bullion question arose, his review of Ricardo's pamphlet, *The High Price of Bullion a Proof of the Depreciation of Bank Notes,* complained that Ricardo

[3] *An Essay on the Principle of Population,* reprint of 1798 edition, edited by James Bonar (London, Macmillan and Co., 1926), pp. 320, 295-8, 282, 304-10.

[4] *Op. cit.,* pp. 74-83.

[5] (London, J. Johnson, 1800), pp. 5-7. (Reprinted in Harry G. Johnson, 'Malthus on the High Price of Provisions', *Canadian Journal of Economics and Political Science,* Vol. 15, 1949, pp. 190-202.

[6] In the *Provisions* he remarked that the poor laws, *because* they led to high prices of necessaries, forced 'strict economy in all ranks of life' (pp. 19-20), and in the *Essay on . . . Population* (London, J. Johnson, 1803) he wrote: '. . . the price of corn in a scarcity, will depend much more upon the obstinacy with which the same degree of consumption is persevered in, than on the degree of the actual deficiency' (p. 399) and '. . . high prices do ultimately diminish consumption . . .' (p. 400).

neglected 'the varying demand for different sorts of produce arising from the varying desires and necessities of the nations', stated that supply and demand 'are unquestionably the foundation on which the whole superstructure of political economy is built', and pointed out that in trade 'both parties gain what, in the estimation of each, is decidedly more than an equivalent for what it has given'.[7] In August of the same year Malthus attributed mercantile failures and 'misery among the manufacturing classes' to credit inflation combined with the wartime loss of foreign markets.[8] In June he had arranged to meet Ricardo, as he wrote, 'that as we are *mainly* on the same side of the question, we might supersede the necessity of a long controversy in print . . . by amicable discussion in private'.[9]

Ricardo objected to the proposition that variations in the demand for commodities might cause fluctuations in the value of the precious metals.[10] Two years of discussion of the question left Ricardo unconvinced, but faced with a variation of the argument from demand in which new or expanded markets raised the rate of profit.[11] The argument is summarised by Ricardo in a letter to Trower dated 8th March 1814:

'I contend that the arena for the employment of new Capital cannot increase in any country in the same or greater proportion than the Capital itself, . . . unless there be improvements in husbandry,—or new facilities be offered for the introduction of food from foreign countries;—that in short it is the profits of the farmer which regulate the profits of all other trades,—and as the profits of the farmer must necessarily decrease with every augmentation of Capital employed on the land, provided no improvements be at the same time made in husbandry, all other profits must diminish . . . . Mr. Malthus . . . thinks that the arena for the employment of Capital may increase, and consequently profits and interest may rise, altho' there should be no new facilities . . . for the production of food;—that the profits of the farmer no more regulate the profits of other trades, than the profits of other trades regulate the profits of the farmer, and consequently if new markets are discovered, . . . profits will increase and interest will rise.'[12]

The price of wheat had reached its wartime peak in 1812, an average of 126s. 6d. for the year. Good harvests from 1812 through

[7] 'Publications on the Depreciation of Paper Currency', *Edinburgh Review*, Vol. 17, 1811, pp. 342, 341, 357—footnote to p. 356. (This review is hereafter cited as 'Depreciation'.)

[8] 'Pamphlets on the Bullion Question', *Edinburgh Review*, Vol. 18, 1811, pp. 460-1.

[9] *The Works and Correspondence of David Ricardo*, edited by P. Sraffa (1951-52), Vol. VI, p. 21. See also pp. xviii-xix. Their privacy has not been respected.

[10] *Works and Correspondence*, Vol. VI, p. 26.

[11] *Ibid.*, Vol. VI, pp. 93-4.

[12] *Ibid.*, Vol. VI, pp. 103-4.

1814 and the opening of trade with the Continent in the latter year had led to falling wheat prices; bankruptcies among farmers began to be numerous in 1814.[13] Proposals for more protection for agriculture brought forth Malthus's *Observations on the Effects of the Corn Laws,* and a new phase of the correspondence began. The determination of profits continued to be at issue, but the setting was now one of falling prices and unemployment,[14] and effective demand soon entered explicitly into the argument. It was in this discussion that their differences over the meaning of demand became most clear. Malthus's doubts that restrictions on corn imports would lower the rate of interest brought a response from Ricardo: 'The rate of profits . . . essentially depends upon the cheapness of provisions . . . .' 'Demand has no other limits but the want of power of paying for the commodities demanded. Every thing which tends to diminish production tends to diminish this power.' [15]

But Malthus insisted:

'I can by no means agree with you . . . that every thing which diminishes produce, tends to diminish . . . the effective demand . . . . The demand for capital depends, not upon the abundance of *present* produce, but upon the demand for the future products of capital . . . . And in this question that great element of effective demand,—the desire to consume in those who possess revenue, must always have great influence . . . .' [16]

And in his next letter said:

'The whole amount of demand will from advanced prices diminish of course, but the *proportion* of *demand* to the *supply* which is always the main point in question, as determining prices and profits, may continue to increase . . . .' [17]

Soon Ricardo brought the issue to the surface:

'I sometimes suspect that we do not attach the same meaning to the word demand. If corn rises in price, you perhaps attribute it to a greater demand, —I should call it a greater competition. The demand cannot I think be said to increase if the quantity consumed be diminished, although much more money may be required to purchase the smaller than the larger quantity.' [18]

[13] Gilbert Slater, *The Growth of Modern England* (Boston, 1933), pp. 240-41.

[14] Malthus's concern is clear in *The Grounds of an Opinion on the Policy of Restricting the Importation of Foreign Corn* (London, John Murray, 1815), pp. 8-10, 31-34, and in the *Essay* (5th ed., London, John Murray, 1817), Vol. 2, p. 365 and Vol. 3, Book 4, Ch. 7. See also James J. O'Leary, 'Malthus's General Theory of Employment and Post-Napoleonic Depressions', *Journal of Economic History,* Vol. III, 1943, pp. 185-200.

[15] *Works and Correspondence,* Vol. VI, p. 108.

[16] *Ibid.,* pp. 110-12.

[17] *Ibid.,* p. 117. See also p. 123.

[18] *Ibid.,* p. 129.

Malthus replied:

'. . . high profits always indicate a comparative excess of demand above supply, even though the demand and supply should *appear* to be precisely equal. Effectual demand consists of two elements the *power* and the *will* to purchase. The power to purchase may perhaps be represented correctly by the produce of the country . . . ; but the will to purchase will always be the greatest, the smaller is the produce compared with the population . . . . When capital is abundant it is not easy to find new objects sufficiently in demand. When capital is scarce nothing is more easy . . . . It is not merely the proportion of commodities to each other, but their proportion to the wants and tastes of mankind that determines prices.' [19]

And again:

'I cannot . . . agree . . . that "the desire of accumulation will occasion demand just as *effectually* as a desire to consume ["] . . . . I know no other cause for the fall of profits which I believe you will allow generally takes place from accumulation than that the price of produce falls compared with the expence of production, or in other words that the *effective* demand is diminished . . . .' [20]

To make more effectively his case that demand was a determinant of profits, Malthus needed a new concept of demand. The Ricardian concept of demand as the quantity taken would not do, but exactly what concept Malthus would use to represent the will to purchase did not appear until 1820.

Profits continued to be the principal topic of their correspondence, but occasional applications to the glut problem began to appear in 1817. In January Malthus wrote:

'You seem to think that the wants and tastes of mankind are always ready for the supply . . . . [Few] things are more difficult than to inspire new tastes and wants, particularly out of old materials . . . . I am quite of opinion that *practically* the actual check to produce and population arises more from want of stimulus than want of power to produce . . . .' [21]

In October:

'Abundance without increase of value . . . would . . . lead to a stagnation of demand and of industry. If the value of the national produce however abundant will not command more labour this year than the last, . . . the new labourers coming into the market must be unemployed.' [22]

[19] *Ibid.*, pp. 131-2.
[20] *Ibid.*, pp. 141-2 (letter of 9th October 1814).
[21] *Ibid.*, Vol. VII, pp. 122-3.
[22] *Ibid.*, Vol. VII, p. 194. See also pp. 214, 312.

He concluded this letter with the news that he was 'meditating another volume'.

Ricardo's *Principles* with its embodied labour theory of value had provided some of the incentive. Malthus could not agree that labour alone was the best measure of exchangeable value, and insisted that natural price as well as market price was determined by demand and supply. To this Ricardo replied that even though 'the absolute demand and supply, or the proportion of one to the other', should remain the same, the price would fall if the expenses of production declined.[23]

THE *PRINCIPLES*, 1820

The *Principles* presented Malthus's great contribution to the analysis of gluts. Adam Smith's proposition that the frugal man is a public benefactor was now restricted by the proposition that 'if production be in a great excess above consumption, the motive to accumulate and produce must cease from the want of will to consume'.[24] The will to consume depended upon commodities being adapted to the wants and tastes of the people. Exchangeable value, founded on the wants and tastes of the people, was 'the sole cause of the existence of wealth'. Exchangeable value, in turn, was determined by demand and supply, not by the labour embodied.[25] To show how demand could be effective in the direction of economic activity, Malthus presented his concept of the intensity of demand.

> 'Mr. Ricardo . . . observes that "the demand for a commodity cannot be said to increase, if no additional quantity of it be purchased or consumed." But it is obvious . . . that it is not in the sense of mere extent of consumption that demand raises prices, because it is almost always when prices are the lowest, that the *extent* of consumption is the greatest. This, therefore, cannot be the meaning hitherto attached to the term demand, when it is said to raise prices . . . . [One meaning] implies extent of consumption, the other intensity of demand, or the will and power to make a greater sacrifice in order to obtain the object wanted. It is in this latter sense alone that demand raises prices . . . .'[26]

[23] *Ibid.*, Vol. VII, pp. 176, 250-1. Long before, Francis Horner had confronted Malthus with the argument that the supply would adjust to the demand, so the price would stay the same. ('Observations on the Bounty upon Exported Corn', *Edinburgh Review*, Vol. 5, 1804, p. 201—attributed to Horner by Frank Whitson Fetter, 'The Authorship of Economic Articles in the *Edinburgh Review*, 1802-1847', *Journal of Political Economy*, Vol. 61, 1953, p. 245.)

[24] *Principles of Political Economy Considered with a View to Their Practical Application* (London, John Murray, 1820), pp. 8-9.

[25] *Ibid.*, pp. 339-44. See also pp. 348-9, 356, 358, *et passim*.

[26] *Principles* (1820), pp. 71-2. The terms 'intensity' and 'extent' may have been adopted from Bentham's classification of the bases for valuing pleasures, made in 1789. (Jeremy Bentham, *An Introduction to the Principles of Morals and Legislation* (Oxford, Clarendon Press, 1907), pp. 29-30.)

Malthus's formal definition of demand in 1820 was sufficiently commonplace: 'the will combined with the power to purchase . . . .' His interpretation was not. The greater this will and power, 'the greater or more intense . . . the demand',[27] he wrote, effectively substituting the intensity of demand as his working concept.[28]

In terms of the modern concept of the demand schedule, it is clear that an increase in the intensity of demand can result either from a shift of the demand schedule to the right (an increase in the number, wants, or means of the purchasers), or from a leftward movement along a given demand curve (some deficiency in supply making effective a different point on the demand schedule).[29] Malthus was not interested in distinguishing between these two cases. His use of the concept is indicated by the following quotations.

'If, for instance, a commodity . . . habitually demanded and consumed by a thousand purchasers, were suddenly to be wanted by two thousand, it is clear that before this increased extent of demand can be supplied, some must go without what they want; and it is scarcely possible to suppose that the intensity of individual demand would not increase among a sufficient number of these two thousand purchasers, to take off all the commodity produced at an increased price . . . . At the same time, if we could suppose it possible, that . . . the intensity of their demand would not admit of increase, it is quite certain that . . . no rise of price could take place'.

'. . . if the permanent cost of producing the commodity were doubled, . . . [the] quantity of commodity which would be brought to market . . . might be reduced to the supply of a single individual, or might remain precisely the same as before. If [the former] . . . , it would be a proof that only one of all the former purchasers was both able and willing to make an effective demand for it at the advanced price. If the supply remained the same, it would be a proof that all the purchasers were in this state, but that the expression of this intensity of demand had not before been rendered necessary. In the latter case, there would be the same quantity supplied and the same quantity demanded; but there would be a much greater intensity of demand brought forth . . . ; and this may be fairly said to be a most important change in the relation between the supply and the demand of these com-

[27] *Ibid.*, pp. 64, 66.

[28] In *Definitions in Political Economy* (London, John Murray, 1827), pp. 244-5, Malthus was more explicit: 'Demand,' he wrote, 'has two distinct meanings: one, in regard to its extent, or the quantity of commodities purchased; and the other, in regard to its intensity, or the sacrifice which the demanders are able and willing to make in order to satisfy their wants.' Demand in regard to its *extent*: 'The quantity of the commodity purchased, which generally increases with the increase of the supply, and diminishes with the diminution of it . . . .' Demand in regard to its *intensity*: 'The sacrifice which the demanders are able and willing to make in order to satisfy their wants. It is this species of demand alone which, compared with the supply, determines prices and values.'

[29] *Principles* (1820), pp. 66-7. An increase or decrease of the 'means of the demanders' was added to the list in the second edition (London, William Pickering, 1836, p. 64).

modities; because, without the increased intensity of demand . . . the commodity would cease to be produced . . . .

'. . . if a commodity were to become much more abundant, . . . though the wills and powers of the old purchasers might remain undiminished, yet as the commodity could be obtained without the expression of the same intensity of demand as before, this demand would of course not then show itself.

'A similar effect would obviously take place from the consumers of a commodity requiring a less quantity of it.

'If . . . the cost of producing any particular commodity were greatly diminished, . . . the competition of the sellers would lower the price, and it very rarely happens that a fall of price does not occasion an increased consumption. On the supposition however, of the very rare case that a definite quantity of the commodity only was required, . . . the actual quantity of the commodity supplied and consumed may possibly, after a short struggle, be the same as before; yet it cannot be said that the demand is the same. It may indeed exist precisely in the same degree, and the actual consumers of the commodity might be perfectly ready to give what they gave before rather than go without it; but such has been the alteration in the means of supply, compared with the demand, that the competition of the producers renders the same intensity of demand no longer necessary to effect the supply required; and not being necessary, it is of course not called forth, and the price falls.'[30]

The first of these cases, though it represents a shift of the market demand schedule, is one in which the increase of the intensity of demand on the part of the individual purchasers is the result of an upward movement along their individual demand curves, as the quantity of the commodity otherwise available for each of them is diminished. Each other illustration that Malthus gives here is one in which the change in demand represents a movement along the market schedule, with the exception of the next to the last paragraph of the passage quoted.[31] What we would call a shift of the demand schedule would change the intensity of demand, but the mechanism was too obvious to require elaboration, thought Malthus. In his second edition he was explicit about including a change in the schedule sense: 'Of course it must often happen that an increased intensity of demand, and an increased extent of demand go together. In fact, an increased intensity of demand, when not occasioned by an increased difficulty of production, is the greatest encouragement to an increase of production and consumption.'[32]

[30] *Principles* (1820), pp. 67-70.

[31] Adam Smith, followed by Ricardo, had attributed to 'competition' the rise in price that occurred when the quantity brought to market was less than the effectual demand. (*The Wealth of Nations* (New York, Random House, 1937), pp. 56-7.) Smith had also remarked that, rather than go without, some buyers would be willing to give more than the natural price. (*Idem.*, Malthus cites this remark in the second edition of the *Principles*—pp. 65-6—but not in the first.) Malthus made this phenomenon of differing demand prices the core of his demand analysis.

[32] *Principles* (1836), p. 69.

The concept of intensity of demand made demand and supply a useful explanation of prices and strengthened Malthus's case for regarding people's wants and tastes, expressed through the intensity of demand, as the active force in the determination of the level of business activity. Though Malthus insisted that he had not given any new meaning to 'demand', but had simply explained the meaning always attached to it when demand was said to raise prices,[33] he had made an original contribution to the clarification of the process by which demand does affect prices.

Malthus's 'intensity' would eventually adjust to equality with the cost of production, but Malthus was not willing, on that account, to supplant demand by cost of production in his theory of value. His departure from the ordinary position is well illustrated by contrasting him with the unknown author of 'Ricardo Made Easy'. Although this writer clearly recognised the importance of the maximum demand price in certain cases,[34] he held that value was determined *either* by cost (negative value) *or* by use-value (affirmative value), but not by both at once. Malthus insisted that demand as intensity was always an active force.

It is noteworthy that Malthus often spoke as though there were a latent intensity of demand, expressed in greater or lesser degree as circumstances might warrant.[35] It is tempting to speculate concerning the theory he might have developed had he been interested in individual demand rather than in market demand. However, the marginalist implications of Malthus's conception were developed by others than himself.

Presumably the same practical interests that led Malthus to emphasise demand kept him both from inquiring into the problem of individual demand and from attempting to analyse what lay behind the intensity of demand. His interest in the subjective aspect was severely limited. To be sure, he maintained that there was (subjective) gain from trade and a (subjective) estimate of the signifi-

[33] *Principles* (1820), pp. 71-2.

[34] 'Consequently you draw upon that fund which, in our days, so rarely *can* be drawn upon, viz., the ultimate esteem for the object—the last bidding he will offer under the known alternative of losing it.' 'Ricardo Made Easy; or, What is the Radical Difference between Ricardo and Adam Smith?'. *Blackwood's Edinburgh Magazine*, Vol. 52, 1842, p. 344.

[35] He did not insist on this manner of expression. Indeed, in revising the *Principles*, he made changes in both directions. On p. 66 (1820) he said 'call forth . . . the expression of' the intensity of demand; on p. 67 he used the same expression, but farther down the page referred to the intensity of demand increasing. In the second edition (1836) the passage from p. 66 was revised to read 'increase' (p. 63), the first-mentioned passage from p. 67 was left unchanged, and the second was revised in the opposite direction.

cance of a commodity ;[36] he stressed the importance, for the maintenance of effective demand, of having commodities suited to the tastes of consumers,[37] and he remarked that the most useful commodity, if in absolute excess, loses 'its power of supplying the wants of society to the extent of its quantity, and part of it therefore loses its quality of wealth'.[38] On the other hand, he brushed aside the concept of value-in-use[39] and argued that 'the man who has two pairs of stockings of the same quality instead of one . . . possesses . . . a double portion of the conveniences of life'.[40] Say's use of utility[41] he thought 'an abuse of the natural meaning of the term'.[42]

Over half of Malthus's chapter on value was given over to discussing the measure of value. The question had arisen in many controversies,[43] and seemed closely connected with the problem of the causes of value. Much of Malthus's attack on Ricardo's theory took the form of a dispute over the measure of value.[44]

In the 1820 *Principles* Malthus held that an accurate measure of real value-in-exchange was unattainable,[45] and recommended a mean between the prices of corn and of labour as the best practical approximation for most cases.[46] His ultimate shift to 'labour commanded'

[36] 'Depreciation', pp. 356-7, note ; *Principles* (1820), p. 53. Also, *Definitions in Political Economy*, p. 251.

[37] *Principles* (1820), pp. 399-444.

[38] *Ibid.*, p. 340. See also Ricardo, *Works and Correspondence*, Vol. IX, p. 64.

[39] *Ibid.*, pp. 51-2.

[40] *Ibid.*, p. 338. In the second edition, Malthus remarked that some writers have denied that doubling the quantity doubles the satisfaction, but he maintained his position (p. 300). One of the writers referred to was probably the anonymous author of *Observations on Certain Verbal Disputes* (London, R. Hunter, 1821), p. 65.

[41] 'Cette faculté qu'ont de certaines choses de pouvoir satisfaire aux divers besoins des hommes.' Jean-Baptiste Say, *Traité d'Economie Politique* (2nd ed.) (Paris, Antoine-Augustin Renouard, 1814), Vol. I, p. 3.

[42] Ricardo, *Works and Correspondence*, Vol. IX, p. 64. See also p. 260.

[43] See Malthus's reviews: 'Newenham on the State of Ireland', *Edinburgh Review*, Vol. 14, 1809, p. 160 ; 'Depreciation', pp. 350-1, 357 ; 'Pamphlets on the Bullion Question', pp. 450, 467-8 ; and 'Thoughts and Details on the High and Low Prices of the Last Thirty Years', by Thomas Tooke, *Quarterly Review*, Vol. 29, 1823, pp. 233-9. See also Malthus, *Observations on the Effects of the Corn Laws*, pp. 13-4, and *The Grounds of an Opinion*, pp. 37-42, and the review which Fetter (*op. cit.*, p. 248) attributed possibly to David Buchanan, 'Observations on the Effects of the Corn Laws . . . ; The Grounds of an Opinion . . . ', *Edinburgh Review*, Vol. 24, 1815, pp. 494-5, 504.

[44] Cf. Ricardo's letter to Trower: 'the progress of the science is very much impeded by the contrary ideas which men attach to the word value . . . . [Until] we can agree as to some common measure by which to estimate the variations in the value of the commodities of which we speak, . . . we cannot understand each other . . . .' *Works and Correspondence*, Vol. IX, pp. 312-3.

[45] As he had in 1814 in *Observations on the Corn Laws* (London, J. Johnson, 1814), p. 12, and *Principles*, pp. 60, 132.

[46] *Principles*, pp. 126-33.

as the measure of value was foreshadowed by his frequent use of it and his argument that it was the best single commodity for this purpose. How attractive this measure of value seemed for his theory of gluts is revealed by the argument: (1) Labour is the most extensive subject of exchange; (2) command over labour shows how well commodities are suited to men's wants and how abundant they are, compared with the desires and numbers of consumers; (3) lastly, 'the accumulation of capital, and its efficiency in the increase of wealth and population, depends almost entirely upon its power of setting labour to work; . . . of commanding labour'.[47] Moreover, while 'labour employed' involves only one cause of exchangeable value, 'labour commanded' involves them all. Ricardo's measure, 'labour employed', Malthus insisted, confused cost and value, and made it difficult to explain 'the main stimulus to the production of wealth'.[48]

> 'No plenty of commodities can occasion a real and permanent increase of capital if they are of such a nature, or have fallen so much in value that they will not command more labour than they have cost. When this happens from permanent causes, a final stop is put to accumulation; when it happens for a time only, a temporary stop to accumulation takes place . . . .'[49]

1820-1836

Futile as the measure of value discussion seems to us, it dominated Malthus's further work on value. The first correspondence after the *Principles* dealt principally with gluts,[50] but in September 1821 Malthus brought up the topic of the measure of value.[51] Ricardo had insisted that a standard of value should be invariable,[52] but argued that this was impossible because the (relative) value of any commodity might be altered by changes in either the quantity of labour required or the rate of profit.[53] By September Malthus had the germ of a 'proof' of invariability which he apparently believed would support 'commanded labour' as a measure,[54] and also had 'a greater

[47] *Ibid.*, pp. 118-20. See pp. 322-3 *et passim.*
[48] *Ibid.*, pp. 61, 106-7, 124.
[49] *Ibid.*, p. 120.
[50] See *Works and Correspondence*, from Vol. VIII, p. 183 through Vol. IX, p. 27 (21st July 1821).
[51] *Ibid.*, Vol. IX, p. 64 *et passim.* Ricardo's *Notes on Malthus's Principles* had been in Malthus's hands for at least three months beginning late in January (*ibid.*, Vol. II, p. xi). The third edition of Ricardo's *Principles*, revised while he was writing the *Notes*, had appeared in May (*ibid.*, Vol. I, pp. liii-liv).
[52] *Ibid.*, Vol. II, pp. 28-35, 90-1, 94-100; Vol. VIII, p. 229.
[53] *Ibid.*, Vol. I, pp. 43-5. He was still making the point in his next but last letter to Malthus, 15th August 1823 (*ibid.*, Vol. IX, p. 352).
[54] 'I am more than ever convinced that I am right in the approximating measure . . . which I have proposed.' (*Ibid.*, Vol. IX, pp. 64-6.)

disposition to reject commodities in general, as a *measure*, and refer only to those where the cost of production including profits seems to continue most nearly the same'.[55]

The Measure of Value Stated and Illustrated presented his full proof. The effort to measure the general power of purchasing was abandoned in favour of measuring 'natural' or 'absolute' value,[56] and 'commanded labour' was presented as an invariable standard for this purpose. Natural value represented the natural conditions of supply.[57] With the shift to the measurement of natural value came greater emphasis on costs in his later years.[58] Demand and the intensity of demand were not discarded, but development along these lines essentially ceased after 1820, except for an illuminating footnote

[55] *Ibid.*, Vol. IX, p. 79 (Malthus's italics). See also pp. 64-5.

[56] '. . . the power of one object to command another in exchange . . . may obviously arise either from causes affecting the object itself, or the commodities against which it is exchanged.

'In the one case, the value of the object itself may properly be said to be affected; in the other, only the value of the commodities which it purchases . . . . The value of any commodity estimated in [an object always of the same value] might . . . be called its absolute or natural value; while the value . . . estimated in others could only be considered as its nominal or relative value . . .' (London, John Murray, 1823, pp. 1-2).
The distinction in the first paragraph evidently follows Lauderdale (*op. cit.*, pp. 13-5), but in the 1836 *Principles* credit is given to Senior (pp. 56-7). Senior did provide the labels, 'extrinsic' and 'intrinsic', which Malthus later adopted, but the classification itself was not publicly used by Senior until his first course of lectures at Oxford (Nassau William Senior, *Industrial Efficiency and Social Economy*, edited by S. Leon Levy (New York, Henry Holt, 1928), Vol. 2, p. 39) some three years after it had appeared in *The Measure of Value*.

[57] *The Measure of Value*, pp. 3-4. In 1827 Malthus stated that the value of a commodity refers to 'the conditions of its supply, or the natural and necessary costs of its production'. ('On the Meaning which is Most Usually and Most Correctly Attached to the Term "Value of a Commodity"', *Transactions of the Royal Society of Literature of the United Kingdom*, Vol. 1, Pt. 2, 1829, p. 74—delivered in 1827). In the 1836 *Principles* value, when unmodified, became the power of purchasing arising from 'intrinsic' causes (p. 60). Equivalent expressions, he said, were 'the estimation in which a commodity is held, founded on the desire to possess and the difficulty of obtaining possession of it'; and 'the estimation in which a commodity is held . . . , determined . . . by the state of the supply compared with the demand, and ordinarily by the elementary cost of production' (*Principles* (1836), p. 60). For earlier statements see *Principles* (1820), p. 53, and *Definitions in Political Economy* (London, John Murray, 1827), pp. 235, 243, 244.

[58] 'On the Measure of the Conditions Necessary to the Supply of Commodities', *Transactions of the Royal Society of Literature of the United Kingdom*, Vol. 1, Pt. 1, 1827, pp. 171-80—delivered in 1825. See also the items cited in the previous footnote and certain changes of expression in the second edition of the *Principles* (pp. 95, 116, *et passim*). For omissions of certain first edition passages, compare pp. 52-3 and 73 (1820) with pp. 50 and 70 (1836).

saying that prices were determined 'by the demand *in posse* compared with the supply *in esse*'.[59]

Malthus's 'proof' of the invariable value of labour[60] did not survive the criticisms of Ricardo and others.[61] Though he persisted in his defence of 'commanded labour' as the measure of value, he continually modified his reasons. 'Labour commanded' was said to represent the necessary conditions of supply,[62] since, as he had said in *The Measure of Value*, it was equal to the quantity of labour worked up in a commodity, plus profits.[63] In the 1836 *Principles* he relied upon a uniformity of sacrifice involved in a day's labour, but resorted finally to the proposition that 'labour commanded' expressed the limitation of the supply of a commodity compared with the demand.[64] It was also held to express the difficulty of obtaining possession of a commodity, or the estimation in which commodities were held, 'founded on the desire to possess, and the difficulty of obtaining possession of them'.[65]

Though Sraffa remarks that the changes in Malthus's second edition do not generally appear to be in answer to Ricardo's criticisms,[66] it is clear that the Ricardian controversy was the dominant influence with respect to Malthus's value theory. During his 1820-22 revisions Malthus crossed out most of Section VI on 'commanded labour' as a measure of value, and inserted a copy of the table from *The Measure of Value* which summarised his proof of invariability.[67] Criticism from Ricardo (and others) later forced him to abandon that

[59] *Principles* (1836), p. 64. The note begins: 'Sir Edward West seems to think that a demand *in posse* cannot be called demand.'

[60] '. . . the quantity of labour required to produce the wages of a given number of men, with the addition of the profits upon these advances estimated in labour, must always be exactly the same as the quantity of labour which the wages will command . . . And it follows, that . . . the natural value of the corn wages of a given number of men must always be the same. . . . Consequently the value of a given quantity of labour must . . . be always constant . . .' (*The Measure of Value*, pp. 39-40).

[61] *Works and Correspondence*, Vol. IX, pp. 280-4 *et passim* through p. 382. Samuel Bailey, *A Critical Dissertation on the Nature, Measures, and Causes of Value* (reprint) (London, London School of Economics and Political Science, 1931), pp. 139-51.

[62] 'On the Measure of the Conditions Necessary to the Supply of Commodities', pp. 171-80; *Definitions*, p. 242.

[63] Pp. 27-34; *Definitions*, pp. 196-201. In a letter of 1824, Malthus stated that it was this view of the subject that had convinced him (George W. Zinke, 'Six Letters from Malthus to Pierre Prevost', *Journal of Economic History*, Vol. 2, 1942, p. 189).

[64] Pp. 98-110.

[65] *Ibid.*, pp. 56, 80-4. Cf. *Definitions*, p. 222.

[66] *Works and Correspondence*, Vol. II, p. xiii.

[67] Malthus's working copy of the *Principles* is in the Marshall Library of Cambridge University.

proof and move on, as we have shown, towards the position of his second edition.

Why should the defence of 'commanded labour' have been so important to him? His real reason all along must have been its serviceability for his theory of gluts. This influence was apparent even in the first edition, when he had not yet definitely settled on 'commanded labour'. Only an increased command over labour was sure to bring increased value, profits, and effectual demand, he held.[68] If the measure of value and of effective demand was the labour commanded, it followed directly that a reduction in the effective demand reduced the volume of employment.

'An effectual demand for a commodity, is such a demand as will fulfil the natural and necessary conditions of the supply; or, as it has been defined, it is the sacrifice which the demanders must make in order to effectuate the continued supply of the commodity in the quantity required under the actual circumstances.' [69]

'General wealth, like particular portions of it, will always follow effectual demand. Whenever there is a great demand for commodities, that is, whenever the whole mass will command a greater quantity of standard labour than before, without any greater value of capital having been required to produce them, there is the same kind of reason for expecting a general increase of commodities as there is for expecting an increase of particular commodities when their market-prices rise; without a corresponding rise in their money-cost of production. And on the other hand, whenever the produce of a country estimated in the labour which it will command falls in value, while the same value of advances is continued, the power and will to set labourers to work will be diminished and the increase of produce must, for a time, be checked.' [70]

Ricardo once wrote: 'Allowing you your premises, I see very few instances in which I can quarrel with your conclusions. I agree with all you say concerning the glut of commodities; allow to you your measure, and it is impossible to differ in the result.' [71]

Malthus, confronted with the problem of variations in the volume of aggregate output, found it convenient, as did Keynes a century later,[72] to use command over labour ('wage-units' in Keynes) as a

[68] *The Measure of Value*, pp. 17-8.

[69] *Principles* (1836), p. 80. Cf. his *Definitions*, p. 245, and his 'Essay on Political Economy', (review) *The Quarterly Review*, Vol. 30, 1824, p. 317, for other definitions of effectual demand. These are the express definitions that Professor O'Leary found lacking in the first edition (O'Leary, 'Malthus and Keynes', p. 907).

[70] *Principles* (1836), pp. 363-4. In the corresponding passage in the first edition, Malthus had also found it convenient to refer to command over labour (*Principles* (1820), p. 417).

[71] *Works and Correspondence*, Vol. IX, p. 283.

[72] J. M. Keynes, *The General Theory of Employment, Interest and Money* (1936), p. 91 and Ch. 4. Malthus, too, argued that the price of labour was sticky (Ricardo, *Works and Correspondence*, Vol. IX, p. 20).

unit of measurement. In order to defend his choice of a measure of value against Ricardo, he accepted the proposition that a standard must be invariable, and re-defined value as intrinsic value-in-exchange rather than the general power of purchasing.[73]

That Malthus shifted his own emphasis away from demand may help to explain why his unique contribution, the concept of the intensity of demand, had so little influence.[74] It is significant that the principal development of the concept occurred before Malthus's second edition appeared. Mountifort Longfield [75] used it as the basis of an admirable theory of marginal demand, and went on to develop a marginal productivity theory of interest. John Craig, who published his utility theory of value in 1821, was evidently stimulated by Lauderdale rather than by Malthus, though he did know the latter's *Principles*.[76] Some years later Macleod adopted the intensity of demand as the active force on the demand side in the determination of value.[77] Macleod's use presumably influenced Jevons.[78]

Though Senior borrowed less important ideas from Malthus,[79] he did not adopt the concept of intensity. Still Malthus was indirectly responsible for Senior's statement of diminishing utility, for it was while elaborating the law of variety in opposition to Malthus and others on gluts that Senior brought forth this statement.[80]

On the Continent Malthus's analysis of demand into the elements of intensity and extent showed more survival power. It was adopted

[73] *Principles* (1836), pp. 57-8, 93-4, 96, 111, 117-8.

[74] *The Measure of Value* did not help any. Compare John Stuart Mill's comment in 'Quarterly Review—Political Economy', *Westminster Review*, Vol. 3, 1825, p. 216:

> 'Few . . . can boast . . . of having effected the reading of Mr. Malthus's "Measure of Value", and of his "Principles of Political Economy". It is indeed a task by no means lightly to be engaged in . . . . For if Mr. Malthus excels in anything, it is not certainly in smoothing the road to knowledge; and if any truths are contained in the works to which we have alluded, they must be of the number of those truths which lie hidden in the bottom of a well.'

[75] *Lectures on Political Economy, delivered in 1833* (Dublin, R. Milliken and Son, 1834), pp. 113-5.

[76] *Remarks on Some Fundamental Doctrines in Political Economy* (Edinburgh, A. Constable, 1821), pp. 8-11, 21-2.

[77] Henry Dunning Macleod, *The Elements of Political Economy* (London, Longman, Brown, Green, etc., 1858), pp. 98-100; *The Theory and Practice of Banking*, 3rd ed. (London, Longmans, Green, Reader and Dyer, 1875), pp. 63, 95; *The Elements of Economics* (New York, D. Appleton, 1881), Vol. I, p. 259.

[78] Ross M. Robertson, 'Jevons and His Precursors', *Econometrica*, Vol. 19, 1951, pp. 237-8.

[79] Senior, *An Outline of the Science of Political Economy* (London, W. Clowes and Sons, 1836), pp. 131, 135, 137, 138.

[80] *Ibid.*, pp. 133, 139-40; Senior, *Industrial Efficiency and Social Economy* (ed. S. Leon Levy), Vol. 1, pp. 94, 107.

by Rau,[81] Roscher,[82] and finally by Böhm-Bawerk,[83] who made the extent of demand (the number of desires directed towards the commodity) and the intensity of demand (the figures which the buyers put upon their valuations) the 'individual' determinants of price.

The same interest in public policy that led Malthus to his concept of the intensity of demand stood in the way of its further development. Continuing controversy diverted his attention to the measure of value, with the result that in his later years he emphasised costs rather than demand. The policy arena can stultify as well as stimulate.

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[81] Karl Heinrich Rau, *Grundsätze der Volkswirtschaftslehre* (Heidelberg, C. F. Winter, 1847), pp. 189-90.

[82] Wilhelm Georg Friedrich Roscher, *Grundlagen der Nationalökonomie* (Stuttgart, J. G. Cotta, 1900), pp. 291, 294. Roscher points out (p. 294) that Steuart had already distinguished between 'great' and 'high' demand. See James Steuart, *Works* (London, Cadell and Davies, 1805), Vol. I, pp. 233-4.

[83] Eugen von Böhm-Bawerk, *The Positive Theory of Capital* (London, Macmillan, 1891), pp. 219-25.

REFLECTIONS ON INFLATION [1]

I

We have the unwanted distinction of living in one of the great periods of inflation of modern times. There was, first, the long period—about a century—during which Spanish treasure raised prices throughout Western Europe. The second great inflation took place during the Revolutionary and Napoleonic Wars. The third period, inspired by the First World War, ended in 1920. Finally, in the current period, prices in general are higher than they have been at any time in the last 150 years, and in the United Kingdom we are experiencing the highest sustained rate of increase of prices, recorded in peacetime, since 1800.

What sort of price movements have we been accustomed to in the United Kingdom? In the nineteenth century there were three major movements. From 1818 to 1849 prices fell by about a half; from 1849 to 1873 they rose by about a half; and from 1873 to 1896 they fell, once more, by about a half. Over the century prices fell; the value of money in 1896, measured admittedly by imperfect methods, was about three times as high as in 1818, and almost one-third higher than in 1849. Nineteenth-century experience, therefore, was of falling prices, or, if we concentrate on the second half of the century, of fluctuating prices with a downward trend.

In the twentieth century there have been, so far, three major price movements, the last one being unfinished. From 1896 to 1920 prices rose by about 200-300 per cent., most of the increase taking place in the years from 1914 to 1920. From 1920 to 1932 prices fell by a half to two-thirds; by 1932 wholesale prices had fallen to something like their 1914 level though retail prices were still about 40 per cent. higher than in 1914. Since what happens during a great war might reasonably be excluded from the experience on which expectations about future prices are based, perhaps there were grounds for believing that, in the long period, prices would not rise unduly and might even fall.

This generalisation about prices has been thrown very much in doubt by events since 1932. The third price movement of the twentieth century has, so far, lasted twenty-three years. Wholesale prices have risen by about 300 per cent. and retail prices by about

[1] This article consists substantially of an Inaugural Lecture given in Queen's College of the University of St. Andrews on 21st May 1956.

170 per cent. In some respects these price movements are not without precedent. In the last 150 years we have had two periods in which prices increased for twenty-four years—from 1849 to 1873 and from 1896 to 1920; and in the second of these periods the magnitudes of the increases were roughly similar—300 per cent. for wholesale prices and 200 per cent. for retail prices. But it is still justifiable to describe the last twenty or so years, and certainly the last ten, as exceptional periods in British price history; there is sufficient evidence to make us wonder about the expectation of a reasonably stable long-period value of money to which so much of our social and economic life is geared.

First, there are new factors in the situation which did not exist in the 1870s or the 1920s:[2] the adherence of the major countries of the world to policies of high employment; the new elastic attitude on the part of governments to the control of the supply of money; the increased strength of trade unions in all free countries; the vast growth of social service expenditure; the redistribution of income from rich to poor; and the encouragement and aid given to the industrialisation of the underdeveloped countries. Secondly, comparison of the periods 1896-1920 and 1932-55 shows very substantial differences. *Sixty* per cent. of the increase in prices from 1896 to 1920 took place in *four* war years, but only *thirty* per cent. of the increase from 1932 to 1955 took place in *six* war years. Moreover, though prices rose substantially in 1919 and 1920, ten years after the First World War prices had fallen by one-third to a half, and they were continuing to fall; but ten years after the Second World War prices had risen by 70-100 per cent., far exceeding the rise of 25-35 per cent. that followed the First World War, and there are no convincing signs of a change of trend. Thirdly, the years from 1945 to 1955 have witnessed the highest sustained rate of increase of prices in the non-war years since 1800. Prices have increased at a compound rate of 5-7½ per cent. a year compared with 1½ per cent. a year from 1849 to 1873 and 1-2 per cent. a year from 1896 to 1914. We had, admittedly, a more rapid rate of increase from 1910 to 1920—10-12½ per cent. a year—but that included the abnormal years of the First World War.

We have then to consider a price movement that has continued for twenty-three years, developing, in the last ten years, into the most rapid and sustained peacetime increase in prices experienced in this country in a century and a half. Retail prices have been increas-

[2] Cf. 'Agenda for the Age of Inflation—I', *The Economist*, 18th August 1951.

ing at a rate of 5 per cent. a year. If this rate of increase persists, they will rise by 50 per cent. in eight years and double themselves in about fourteen. This is, of course, only an arithmetical illustration and is not intended to be a forecast of the future course of prices. Such a rate of change of prices, and even a substantially lower rate of increase, would undoubtedly have many major consequences, almost all of them undesirable.

II

One of the many definitions of inflation is that it is a substantial, rapid rise in general prices. Inflation, in this sense, has certainly existed in the United Kingdom in the last twenty years. One of the reasons for trying to avoid even moderate inflation is that it might grow into hyper-inflation with prices rising at a fantastic rate well beyond the control of the monetary authority. The essential feature of hyper-inflation is a loss of confidence in the currency, which causes a breakdown in the system of monetary exchange, growing unemployment, falling production and many other social and economic evils. The most widely-quoted example of hyper-inflation is that of Germany after the First World War, when prices increased 13,300 million times between May 1921 and October 1923. The most spectacular hyper-inflation occurred in Hungary at the end of the Second World War. From 1939 to August 1945 prices rose 130 times ; this was bad enough, but from August 1945 to June 1946—only eleven months—they rose a further 31×10^{16} times. Hyper-inflation is *such* an obvious evil that it is unnecessary to elaborate. It is unlikely that, to take the German example, a two-ounce bar of chocolate will cost £330 m. in the foreseeable future. If prices begin to rise at a rate of 5 per cent. a fortnight instead of 5 per cent. a year, it is time to talk about hyper-inflation.

Instead of being on the verge of a flight from the currency, the community is, in the main, behaving as though it could expect relatively stable prices. Most of us appear to be adjusted to, or to expect, prices that behave in a manner different from the actual behaviour of prices in recent years. Whether this is because of convention and inertia, inadequate understanding, an absence of suitable hedges against inflation, faith or intuitive wisdom, it is impossible to say. With the exception of those who have managed to tie their incomes to a cost-of-living index, people are still selling their services for a fixed monetary return when, in doing so, they must have faith in the future generosity of their employers or the strength of their trade

unions or the possibility of changing jobs relatively easily. People are saving and using money as a store of value, even though it has been a steadily deteriorating store of value. We are lending at fixed rates of interest, even though the fall in the value of money, to say nothing of taxation, means that the loans are made at negative rates of interest; the principal of a loan with the interest accruing during almost any period of the inflationary years has had a smaller purchasing power over goods and services at the end of that period than the principal alone at the beginning. Long may such price expectations and behaviour continue!: they form one of our protections against even greater inflation. If the majority of people operated on the belief that prices were going to rise at a rate of 5 per cent. a year the tendency to inflation would be seriously strengthened.

Though the United Kingdom is not within sight of hyper-inflation, moderate inflation has its own undesirable social and economic consequences. The relations of employers and employees are made more difficult because of additional claims and struggles for higher wages and salaries. Production planning becomes more complex, because often the industrialist does not know how much a job will cost in the end or when the work will be finished. Those whose incomes are contractual, *e.g.* wages and salaries, tend to lose relatively to those whose incomes are non-contractual, *e.g.* the recipients of profits; and the consequent redistribution of income, almost certainly from lower to higher incomes, may run counter to social policy. Again, the biggest recipients of non-contractual incomes are the larger companies, and their expanded profits may enable them to buy up other smaller units, especially those that do not adequately foresee the effects of inflation: amalgamation is often advantageous, but inflation has frequently led to undesirable monopoly concentrations. And, of course, even moderate inflations can inflict hardship on social groups dependent on relatively fixed incomes. Some of these undesirable results of inflation can be found in Britain, but progressive taxation, various direct controls and certain institutional factors have helped to keep them at bay. And, though our inflation is bad enough, it is relatively mild when compared with what has happened at other times in other countries. If it were more severe, the consequences would be more obvious. As it is, the most obvious undesirable effects are probably to be seen in our balance of payments and our foreign exchange reserves.

For prices to rise in this country, expenditure must increase more rapidly than the value of output at existing prices: there must be an excess monetary demand. Part of the excess may be spent on

imports ; another part may lure productive resources away from the export industries and detain at home goods that might have been sold overseas ; and a third part may be used to order capital equipment, etc., that cannot be produced immediately, thereby lengthening the time interval between order and delivery and lengthening the delivery dates that can be quoted to foreign purchasers (possibly losing their orders). The remainder of the excess demand, after these deductions, tends to raise domestic prices ; this, in its turn, increases the difficulties of our exporters and makes imports more attractive. In these four ways expenditure on imports tends to increase, and earnings from exports to fall ; and the farther inflation goes, relatively to our trading neighbours, the stronger is the tendency, and the weaker our balance of payments becomes. Admittedly, our balance of payments has been in deficit in only two of the last eight years—1951 and 1955—but it has not been particularly healthy ; and inflation has been showing signs of developing to a greater extent in this country than in many other countries. We have always to remember how dependent our economy is on imports, and that, ' if we do not export enough, we shall be unable either to support the expansion of production at home or to maintain full employment '.[3] It is this result of inflation, with its obvious and immediate dangers, rather than the less-obvious, slower-acting, economic and social effects described earlier, that has initiated the recent attack on rising prices.

III

Why have prices risen? Why are they rising? Let us concentrate on the events of the last ten years. Price movements, in this period, have been described in the White Paper on *The Economic Implications of Full Employment*. The description is summarised below.

The prices of our final output of goods and services are determined, in the main, by the prices of our imports and our domestic costs of production. The costs of production are equal to the sum of the incomes received by the people who contribute labour, capital or land to the productive process ; they are the sum of wages, salaries, profits and rents. Money incomes may rise, though costs and prices do not rise, provided that their rise is not proportionately more than that of the final output of goods and services ; for example, incomes may rise by 5 per cent., without involving rises in

[3] Cmd. 9725, *The Economic Implications of Full Employment* (H.M.S.O., 1956), p. 3.

costs and prices, if final output rises by 5 per cent. or more over the same time.

What determines the level of incomes? The White Paper states that it depends on the balance of demand and supply throughout the whole economic system. If monetary demand increases more rapidly than the value of current output at existing prices, the pressure of demand will tend to raise prices and incomes.[4] In addition, and this is most important, the White Paper suggests that prices can also be forced up by pressure for higher incomes even though the level of demand is not excessive.

In fact, final prices have risen by about 50 per cent. since 1946. About one-seventh of the increase is attributable to the net effect of changes in subsidies and indirect taxation. Between a third and a quarter of the increase was caused by the rise of about 70 per cent. in import prices, a rise of 5 per cent. in import prices causing final prices to rise by 1 per cent. The remainder of the increase—the major part—came about because, though output increased by only 30 per cent., money incomes increased by about 90 per cent. Though it is true that some rises in prices were probably unavoidable because of post-war reconstruction, the Korean War, and higher import prices, there has been in the United Kingdom—to a greater extent than in many other countries—an underlying tendency for prices to rise, a tendency that has continued even in the more normal conditions of peacetime full employment of the last few years.

A significant point in the official analysis is that the principal cause of our price inflation has been increases in spending and incomes in the United Kingdom, and not rising import prices. We must shoulder most of the blame, because we have allowed spending and money incomes to rise much faster than the actual output of goods and services.

Why have incomes risen so much faster than output? Incomes may rise as a result of demand inflation. This happens when, with the economy working at about full capacity, there is an undue increase in one or more of the components of national expenditure, *e.g.* government expenditure, private investment, the demand for exports. In an economy in which price and other controls are not prominent, the increase in demand leads to rising prices and so to rising costs and incomes, modified to the extent to which there is a deterioration in the balance of payments and a lengthening of the time interval between the order and delivery of goods. That such

[4] The whole of any excess of demand will not spend itself on raising prices; part of it will be absorbed in other ways. (Cf. pp. 224-5.)

excesses of demand have been allowed to develop in the British economy in the last ten years, there can be no doubt: the investment boom of 1954-55 is an obvious example.

It may seem that there is a simple answer to this problem of demand inflation. The authors of the White Paper say: 'To maintain full employment without inflation necessarily involves continual adjustments. At times pressure of demand will grow too strong and will need curbing . . . . It is the Government's job to keep the pressure right, and adjustments will have to be made from time to time in fiscal, monetary and social policies to achieve this result.' [5] Neglecting the interesting questions about whether the necessary predictions about demand and supply can be made and whether the practicable changes in fiscal, monetary and social policies can bring about the necessary adjustments in the available time, does it follow that, if demand is kept right, prices will not rise? What do we mean by 'right'? Suppose that we define the right demand for tomorrow as an aggregate expenditure equal to the value of tomorrow's output at today's prices, given that the economy keeps working at full capacity. If expenditure in each interval of time can be controlled in this way, and neglecting changes in import prices, surely there can be no tendency for prices to rise and for incomes to increase faster than production? We do not find agreement in the White Paper; it states that 'prices can also be forced up by pressure for higher incomes even when the level of demand is not excessive'.[6]

The conclusion that we are to draw seems to be that, though the level of demand, the responsibility for which the Government accepts, may not be excessive, prices can still be raised by a process of cost inflation; and we might get the impression that the Government accepts much less responsibility for this. In this process of cost inflation prices are pushed up by sellers because costs have risen, usually, if we neglect import prices, because of increases in wages. But the mechanism of cost inflation is of doubtful analytical validity: demand, directly or indirectly, is the critical factor in all inflationary processes. The crux of the objection is that, to put it crudely and simply, a rise in costs can cause inflation only if excess demand is there already, or if the rise in costs itself swells the aggregate of demand sufficiently to allow the higher costs to be translated into higher prices.[7] Monetary demand must rise faster than output if we are to have an increase in prices and in money incomes. And, if

[5] *Op. cit.*, p. 10.
[6] *Ibid.*, p. 4.
[7] Cf. C. G. F. Simkin, 'Notes on the Theory of Inflation', *The Review of Economic Studies*, No. 52, 1952-53, pp. 150-1.

monetary demand is allowed to do this, is not the Government acquiescing in demand inflation? If demand were always held firm at the level appropriate to today's output at yesterday's prices, there could be no inflation.

The argument may be restated. Wage claims may be submitted and conceded by employers in whole or in part, even though higher wages will increase money costs per unit of output. Employers make such concessions because, though they are going to have to raise their prices, they expect to be able to sell their output at the raised prices. Such expectations can be fulfilled only if monetary demand, in its turn, rises sufficiently to purchase the new output at the higher prices. In granting wage increases over the years of inflation, employers have obviously expected monetary demand to increase, and, in general, they have not been disappointed. The initial cause of the price rise may be the rise in wages, but demand is still the vital factor. The difference between cost inflation and demand inflation lies in the ways in which the process of inflation is started ; but both processes depend on an increase in demand. It might then seem that the solution of the problem of inflation lies in the control of demand —the accepted responsibility of the Government. But there is a further difficulty.

Suppose that wages are allowed to rise faster than productivity over a fairly wide sector of the economy. If monetary demand is allowed to increase only at the rate appropriate to stable prices, unemployment will develop as employers' expectations of sales at higher prices are disappointed. But if the accepted social policy holds that unemployment should not be allowed to increase, then demand will have to be allowed to rise, and the level of demand and the level of prices will become mere consequences of the decisions of employers and trade unions about money wage rates.[8] There may be a 'right' level of demand for maintaining stable prices, and a 'right' level of demand for maintaining high employment, but the two need not coincide. They can be made to coincide only if wages, and factor prices generally, can be prevented from rising faster than the relevant average physical productivities.

It is not difficult to find professional economists—and amateurs

[8] Cf. Sir Dennis Robertson, *Money* (1948), p. 222. 'If we are to tell the blunt truth, was it not the menace of credit stringency which ultimately set a limit to the power of employers to concede increases of money wages and therefore to the determination of work-people to demand them? And if we are to pass finally into a world in which the causal influence exerted by the so-called monetary authorities is limited to registering and implementing the decisions of the trade unions about the rate of money wages, there will surely be international as well as internal strains to be encountered.'

as well—who contend that high employment, combined with the practice of fixing wages sectionally by free negotiation, leads to a chronic tendency for wages, year by year, to rise more rapidly than labour's productivity. Professor Lerner has written: 'If there are less than about 6 million unemployed in the United States of America, the bargaining power of the workers is excessive. The pressure for higher wages is greater than the resistance to wage increases by employers, and wage rates tend to rise more rapidly than the over-all increase in labor productivity.'[9] Professor Brown, the author of the latest standard work on inflation, concludes that the inflation of the period 1939-53 had, as one of its three main causes, a tendency for factor prices (wages) to rise faster than productivity, and his cautious analysis of inter-war experience might be held to hint that 10 per cent. or more unemployment would be required in Britain to keep wages from rising faster than productivity.[10] Mr. R. F. Harrod, on the other hand, suggests that, to the end of 1954, there is no evidence of a chronic tendency for wages to outstrip productivity by an appreciable amount.[11] His opinion runs counter to those of Lerner and Brown and to the general argument of the White Paper. It is doubtful whether employers, particularly in the nationalised industries, engineering and shipbuilding, would agree with Mr. Harrod. In any event, the recent course of wage settlements suggests the existence of a real problem. In the first quarters of 1955 and 1956 weekly wage-rates rose by 3½ per cent. and 4½ per cent. respectively, whereas the actual rate of increase of labour's productivity was probably less than 3 per cent. a year.

If the maintenance of high employment creates conditions in which wages persist in rising more rapidly than labour's productivity, there will be continuing increases in prices. Inflation can, of course, be engendered in other ways, *e.g.* by the management or mismanagement of expenditure so that it is always in excess of the value of today's output at yesterday's prices, by a persistent rise in import prices. But wage-induced inflation is, in Professor Brown's words, 'the most persistent and troublesome inflationary threat facing the western world'.[12] The other situations are less dangerous because they are easier to control.

[9] A. P. Lerner, *Economics of Employment* (1951), p. 194. Lerner points out that '6 million' is merely a guess, and that a more accurate number might be 4½ million. 'Considerable investigation would be necessary to get more reliable estimates, and the [number itself] may change with changing conditions. But there [is such a number].' (Footnote 1, p. 193.)

[10] A. J. Brown, *The Great Inflation 1939-1951* (1955), pp. 88-98.

[11] R. F. Harrod, 'The British Boom, 1954-55', *The Economic Journal*, March 1956, p. 9.

[12] *Op. cit.*, p. 295.

IV

There is little doubt that our society could tolerate a gradual inflation, possibly a continuing increase of prices of 1 per cent. a year; but anything higher would be uncomfortable, and 5 per cent. a year is dangerous. If the rate of price increase is not to exceed 1 per cent. a year, the record of wage negotiations in recent years is not encouraging. What, then, are the alternatives?

First, there are the optimists. Mr. Harrod suggests that no chronic tendency has appeared, and he makes the important point that the recent inflationary wage increases may be attributed as much to the extreme labour shortage—more jobs vacant than people unemployed—and the excess of money demand, as to the strength of the trade unions' bargaining power. Professor Hicks is also optimistic: 'the continual rise in money wages since 1945 is not a necessary consequence of Full Employment . . . ; it is sufficiently explicable in terms of factors that are peculiar to the time through which we have been passing. [In] the absence of external shocks . . . a condition in which the wage-level has again become relatively stable . . . should be coming into reach.' [13]

Another optimistic argument suggests that, with rapidly increasing labour productivity, money wages may for long periods be able to rise at a rate that satisfies employers and trade unions, even in conditions of high employment, without raising money costs per unit of output too much. But there are not very many optimists.

Secondly, there are those who favour education and propaganda as a solution. The White Paper—an attempt at education and propaganda—says that 'if the prosperous economic conditions necessary to maintain full employment [and growing productive capacity] are exploited by trade unions and business men, price stability and full employment become incompatible'.[14] The solution that it proposes for this great dilemma is no more than 'self-restraint'. Reliance on 'self-restraint' alone, at the present time, would surely deserve to be classified as optimism, and it is clear that the Government has done much more than appeal to people's better natures. Education and propaganda are obviously weapons for the long run; they offer no immediate, short-term solution.

Thirdly, there are the cynics with hard hearts. They argue that, to keep incomes from rising at an unduly rapid rate, it is necessary

[13] J. R. Hicks, 'Economic Foundations of Wage Policy', *The Economic Journal*, September 1955, p. 401.
[14] *Op. cit.*, p. 11.

to accept a lower level of employment than that to which we have become accustomed. A major difficulty here is that, given our sectional system of wage-fixing, the amount of unemployment required to prevent wages from increasing too rapidly relative to labour's productivity is likely to be larger than public opinion would tolerate. Would we want, even for a short time, an unemployment rate as high as 5 per cent.?

Fourthly, there are the controllers, among whom we may include the advocates of a national wages policy. Some of the less extreme controllers propose that we should estimate each year how much the production of labour is likely to increase, and then, using an agreed formula, divide the estimated non-inflationary increment in the money wage-bill among the different industries. Any policy of this kind would require drastic changes in the attitude and functions of the trade unions. And, if the Government tried to regulate the price of labour, it would soon find that it had to regulate the prices of other factors of production as well. Moreover, the task of calculating in advance how much to distribute would put a heavy burden on the inexact business of economic forecasting, a burden that might well slow down the rate of advance of the economy should the forecasters err persistently on the side of caution.

Lastly, there are the pessimists. Some of them look at certain data—adherence to very full employment, the strength of the trade unions, the Welfare State, etc.—and say 'prices will continue to rise as far as human wisdom can see ahead . . . this fact must be candidly recognised, and we . . . must adapt many of our institutions to it'.[15] One institutional change might be to tie wages, salaries, pensions, savings deposits, insurance premiums and benefits, and so on, to some index of retail prices so that they would rise with the index. The scheme proposes to offset some of the unfortunate consequences of inflation by making our incomes and the value of certain assets rise roughly in step with prices. Unfortunately such a change would not save us since it does nothing to offset the forces originally causing the inflation. The continued existence of these forces—perhaps labour's claim for a larger share of the national product—together with the inevitable public realisation that the value of money was not going to remain stable—a belief which is helping us today—would merely accelerate the pace of inflation.

Other pessimists look, with favour, at a definition and analysis of inflation as a process resulting from a competitive struggle between two or more economic groups in the community—the Government,

[15] 'Agenda for the Age of Inflation—I', *The Economist*, 18th August 1951.

business men, labour, a section of labour—for physically incompatible shares of the national product. For prices to rise in such circumstances the monetary authority must be willing to allow the supply of money, and expenditure, to increase sufficiently for the inter-group struggle to take place. But the fundamental thing in the inflationary process is the struggle for physically incompatible shares. If the supply of money were not allowed to increase, the circumstances initiating the struggle would still exist, and it would then come to the surface in some other social or economic form, *e.g.* industrial unrest, a fight for political power. If the struggle is conceded to be the fundamental thing, then inflation is merely a monetary reflection of an underlying social problem ; and we cannot hope completely to solve a problem of this nature by monetary policy—or fiscal policy.

The second type of pessimism, and the absence of acceptable solutions, seems to throw us back to a policy of appealing for self-restraint, and this is a very uncertain prop on which to rest our hopes of avoiding inflation. Is there nothing better? We cannot be optimistic to the extent of saying that there is no problem ; wage-induced inflation is a real threat. And while no one denies the value of education and propaganda, it is fairly certain that they are unlikely to be sufficiently effective in the short run. Again, though there is some level of unemployment that could prevent prices from rising too rapidly, it is likely to be intolerably high, and this solution would merely be a case of substituting one politically-dangerous evil for another. In its turn a national wages policy presents many administrative and political difficulties. And an attempt to ride inflation by tying incomes, etc., to an index of retail prices would make things worse—at home and abroad. Must we then fall back on self-restraint? Even if the Government has nothing more positive to offer in the way of policy, the prospect is not entirely without hope ; there may be some favourable factors.

The Government's manipulation of demand, in aggregate and in its main categories, has not been as good as it might have been in recent years ; there is scope for improvement. Again, there have been, on several occasions, external changes which made it desirable to permit some inflation ; we have little or no control over external factors, but we may hope to be more fortunate in the future. Moreover, productivity might increase fast enough so that, assisted by lessening defence requirements and unhampered by any serious deterioration of the terms of trade, money wages might be able to increase at a rate satisfactory to trade unions and employers, in con-

ditions of high employment, without raising prices by more than 1 per cent. a year.

If these favourable factors are absent, or not strong enough to achieve relatively stable prices, what more positive action can be taken? The Government can always turn off the inflationary tap by restricting the supply of money; it should be made perfectly clear —which it is not in the White Paper—that prices cannot increase unless the Government, as the ultimate controller of expenditure and the supply of money, allows them to do so. But, if unemployment is not to increase and money wages are fixed with an inflationary bias by employers and trade unions, money demand must be allowed to increase to cover the higher costs. Credit stringency cannot then be used to limit the ability of employers to concede higher wages.

If we really want relatively stable prices, we cannot try to pretend indefinitely that we are better off than we really are. It should be possible to give substantial annual non-inflationary wage increases if productivity increases substantially each year. But if what can be conceded without inflation always falls short of what is demanded, then, given that employment at the present level must be preserved, we shall have to think again—at least temporarily—about facing the difficulties of formally regulating factor incomes before tax.

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TRENDS IN THE OUTPUT AND EXPORTS OF MERCHANT SHIPS

I

THE fortunes of the United Kingdom shipbuilding industry depend on the amount of orders for new merchant and naval vessels that it can secure and execute and on the amount of repair work which comes its way. These main groups fluctuate considerably both in absolute amount and in their proportions of gross output. Of the three, repair work is least subject to variation in absolute amount, and, depending on the value of other forms of output, generally accounts for about one-quarter to one-third of the gross output of the industry. Naval construction is highly variable; immediately before the 1914-18 War it accounted for about one-quarter of the output of the industry but it fell to 1 per cent. in 1924; at the present time it may amount to about one-tenth of output. Fluctuations in the output of new merchant vessels are notoriously violent; in the inter-war period output ranged from 2 m. gross tons to a little over 100,000 gross tons, but we may regard it as accounting for about two-thirds of gross output in typical conditions.

In all these fields the United Kingdom competes in foreign markets. As a warship builder she has supplied navies overseas; as a repairer she competes with the Continental centres; and as a builder of merchant vessels she is in competition with shipyards all over the world. It is with this latter aspect of world competition that we are concerned in this review of the statistical trends of the output of merchant vessels in the United Kingdom and other countries.

Fig. 1 shows the changing proportion of United Kingdom output in the world market for ships. Over 60 per cent. of the world's ships were produced in the years 1910-14. After a temporary eclipse in the shadow of the United States' post-war output, the United Kingdom's share of the world market again rose to over 60 per cent. in 1924, only to fall again under the pressure of foreign competition in 1925 and the General Strike in 1926. The comparatively stable years of 1927-30 heralded a violent decline when, in conditions of deep slump, United Kingdom output declined to a little more than one-quarter of world output. Recovery in 1934 was not maintained; and the temporary ascendancy of the United Kingdom at the end of the 1939-45 War was lost when Continental shipbuilders and Japan re-established their shipbuilding output.

The decline in the relative position of the United Kingdom has been caused more by an increase in the output of other countries—particularly Germany, Japan, Sweden and the Netherlands—than to a reduction in the output of the United Kingdom. It is true that in recent years United Kingdom output has not approached the peak levels attained in the early part of the century—before the 1914-18

FIG. 1. Tonnage launched in the United Kingdom as percentages of world launchings. (Vessels of 100 gross tons and over from *Lloyd's Register's* annual summaries.)

War, output exceeded 1·8 m. gross tons on three occasions, and in 1920 it exceeded 2 m. gross tons—but the average of the best five consecutive years (1910-14) was 1·66 m. gross tons compared with 1·37 m. gross tons in 1951-55 and 1·47 m. gross tons in the latter year. Against this moderate reduction in average output must be set a growth in the output of all other countries from some 1·08 m. gross tons in 1910-14 to 3·37 m. gross tons in 1951-55 and 3·84 m. gross tons in the latter year. The United Kingdom still produces a greater tonnage of ships than any other country and may continue to do so, but she no longer holds a completely dominant position in shipbuilding or shiprepairing.

An important factor affecting the United Kingdom's position has been the comparative stagnation of the United Kingdom's merchant fleet, which has yet to regain its peak level of over 20 m. gross tons recorded in 1930. One of the advantages of the Continental shipbuilders and Japan in the 1930s was that their merchant fleets either increased, or contracted only slightly. Between 1929 and 1938 the German and Swedish fleets each increased by 4 per cent., and the Japanese fleet by 20 per cent., while the Dutch fleet declined by only 4 per cent. The United Kingdom, the United States and the French fleets on the other hand declined, respectively, by 12, 17 and 14 per cent. Since shipbuilders of a particular country are at an advantage in securing orders from shipowners of the same country, United Kingdom shipbuilders tended to be harder hit by the slump in the demand for shipping services during the 1930s than their Continental and Japanese competitors.

It would be wrong, however, to suppose that relative changes in the size of fleets was the only or indeed the most important factor affecting the relative decline of shipbuilding in the United Kingdom. Towards the end of the 1930s, Germany, Sweden, Denmark and Holland were producing a comparatively large volume of tonnage for foreign registration. Export business in Germany was fostered by subsidies and the use of blocked marks in part payment for ships as well as by barter agreements. These measures were so successful that almost 100,000 gross tons were launched for United Kingdom owners in 1938 alone. Swedish output for foreign registration was largely for Norwegian owners, and competition in this market from Sweden and other European countries reduced the United Kingdom's sales, which in 1930 had amounted to 300,000 tons, to negligible proportions in the years 1936-38. United Kingdom imports were not confined to tonnage built in Germany; Dutch coasters were readily bought by United Kingdom owners in 1937 and 1938, and larger vessels were purchased from Denmark in 1938.

Though much of the progress of the leading Continental shipbuilders may have been attributed at the time to autarkic economic policies and the effect of shipping and shipbuilding subsidies, it is clear in retrospect that this cannot have been the main reason for the expansion of Continental output. Subsidies failed to stimulate output to any marked extent in Italy, France or the United States. The effectiveness of subsidies depends on producers being at least in measurable distance of being competitive, otherwise they are either ineffectual or prohibitively expensive. There can be little doubt that

the expanding centres of Continental shipbuilding were capable of meeting the United Kingdom on her own ground.

It is difficult to judge the comparative merits of United Kingdom and foreign shipbuilding methods in the 1930s from contemporary accounts. Even at the height of United Kingdom supremacy it was always possible to draw attention to examples of superior equipment or techniques in use in other countries, and criticisms of United Kingdom practice, voiced in the 1930s, should be read with this in mind. Yet the impression remains that Continental shipbuilders were anticipating the changes which would take place in shipyard organisation in the next ten or twenty years rather more readily than shipbuilders in the United Kingdom.

Paradoxically the Continental shipbuilders were drawing ahead because they did not dispose of adequate supplies of skilled labour.[1] The legacy of skill in the British shipyards made it possible to build ships with the minimum of planning and labour supervision. Under the contract system squad leaders undertook the construction of major portions of the ship, lifting the dimensions they required from the partly-constructed ship on the stocks and marking and processing the material with little managerial supervision. The shortage of skilled labour on the Continent made such methods impracticable, and they were abandoned in favour of preparing detailed plans in the drawing office and templates in the loft, which could be used by semi-skilled labour in the marking and processing of the material.[2] At the expense of enlarging the planning departments, less costly and more easily trained labour could be used with advantage.

The greater degree of managerial organisation required with this system of working contributed to greater efficiency in other ways. It led for instance to a different layout of stockyards, workshops and berths, more suited to the substitution of mechanical for manual transport and to economy in the use of unskilled labour. At the same time the changes were favourable to the adoption of prefabrication and a reduction in the amount of work carried out on the stocks.[3] In these ways the seeds of modern development appear to have been planted more firmly on the Continent than in the United Kingdom.

Technically, Continental shipbuilders were probably on a par with the United Kingdom, and they and their customers were quicker to adopt the diesel engine than either the United Kingdom shipowners or shipbuilders. It is probably an exaggeration to say that 'the slow-

[1] See *Shipbuilding and Shipping Record*, 3rd March 1932, p. 269.
[2] See *ibid.*, 7th December 1933, p. 546.
[3] See *ibid.*, 3rd March 1938, p. 273.

ness of British shipping and shipyards to adopt the important innovations in this field seems to be the main explanation of the relative decline in British shipbuilding';[4] sufficient motor ships were being produced by British shipbuilders, even in the 1920s, to provide for the needs of foreign owners had the United Kingdom shipbuilding industry been competitive in other ways. But the slowness of British shipowners to adopt the diesel engine may well have contributed to the decline in the United Kingdom fleet referred to earlier. Whatever may have been the precise causes of the relative decline of United Kingdom shipbuilding in the 1930s (and earlier years) the effects have been lasting. The gains of Continental shipbuilders rest on no temporary props ; they are as evident in the post-war period as in the 1930s, as a glance at Fig. 2 reveals. The slow rise of United Kingdom output has given an opportunity for Britain's competitors to expand their output well above pre-war levels, and in the case of Japan the increase may well be phenomenal.

In the post-war period United Kingdom output has been limited, first, by the shortage of steel, and more recently by the number of men in the industry and the rate at which methods of production are being modified to make better use of available manpower. Many shipyards could increase output considerably without serious difficulty if more labour were available, and some could almost double it without the necessity of working two or three shifts. If labour were available for regular shift-working, as it is, for example, in Germany, the output of all shipyards could be greatly increased. The prospects of maintaining, let alone increasing, manpower are being increasingly impaired by the development of other industries in most of the shipbuilding centres, and, since output per man is likely to increase only slowly, labour is likely to continue to be the factor limiting output.

There is no shortage of shipbuilding capacity. The number of companies engaged in shipbuilding and the number of shipbuilding berths has contracted since 2 m. gross tons of merchant shipping were launched in 1920, but the capacity of the plant and berths in existence is still in excess of this figure even with single-shift working.[5] Prefabrication makes it possible to reduce the time that a ship is on the berth, and so to use available berths more intensively. When the Doxford shipyard was re-organised, for example, it was calculated

[4] Ingvar Svennilson, *Growth and Stagnation in the European Economy* (1954), p. 155.

[5] Sir Amos Ayre estimated capacity at 3 m. gross tons in 1947, given the most favourable distribution of orders and adequate supplies of materials and manpower. See 'Some Statistical Consideration of the Shipbuilding Industry', read before the Greenock Philosophical Society in January 1947.

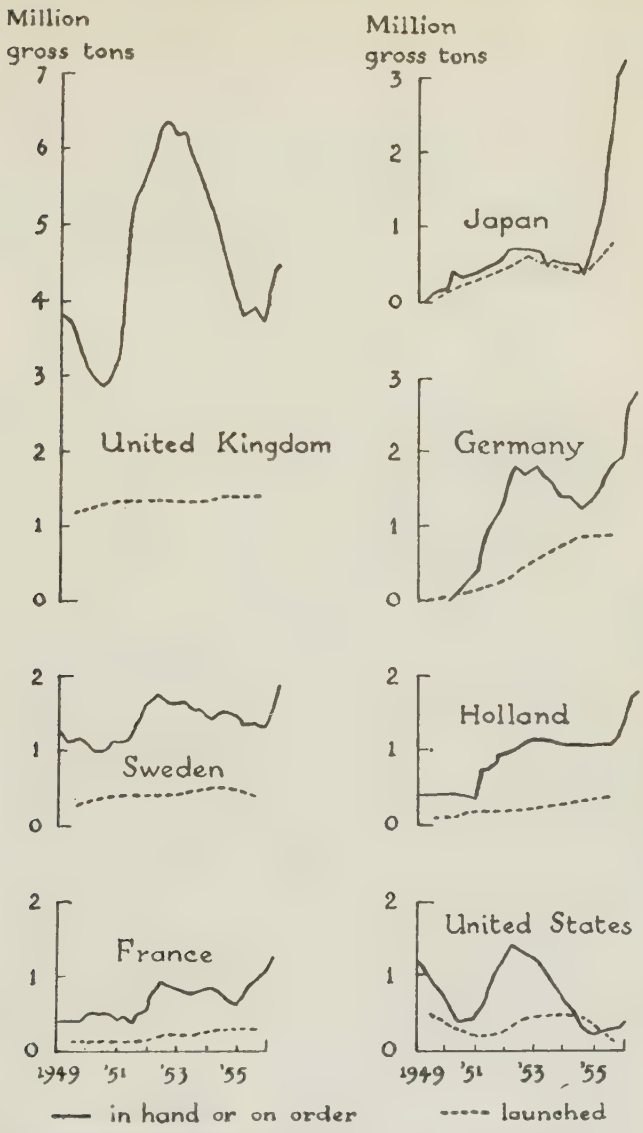

FIG. 2. Tonnage in hand or on order, and tonnage launched in various countries. (Vessels of 1,000 gross tons and over from the *Bulletin of the American Bureau of Shipping.*)

that output could be maintained with three berths, instead of the previous six, and construction times shortened.[6] A comparison of pre-war and post-war figures of tonnage under construction and tonnage completed in United Kingdom shipyards, however, suggests that ships are taking rather longer to build than pre-war ; but the practice of laying down the keel, in some cases three months or more before active construction is undertaken, in order to secure the first progress payment, vitiates this comparison. The industry is well supplied with berths and has tended to spread its efforts over a large number of ships rather than concentrate on speedy completions.

II

Throughout the post-war period the United Kingdom has had a very large volume of orders in hand or under construction, but it has been a fluctuating volume, falling to under 3 m. tons (about two years' output in hand) in 1950 and rising to over 6 m. (about four and a half years' output in hand) in 1952 (see Fig. 2).[7] Both in 1950 and more recently in 1954 fears were expressed about the future level of activity.

An average of even two years' work in hand does not mean in practice that all shipyards, and particularly the smaller ones, have a surfeit of work. But the fears expressed in 1950 were allayed by the demand for shipping during the Korean War, and the dearth of orders in 1954 gave way to a rising trend in 1955 as a new batch of orders for tankers was placed in United Kingdom shipyards. The ups and downs of world demand are also reflected in the figures for other countries. Swedish order books fluctuated in much the same way as those of the United Kingdom. Orders placed with the newly-reconstructed German yards increased in 1951, as might be expected, but they fell in 1953 and 1954. Dutch yards, on the other hand, suffered only a very small reduction in order books, while Japanese and French yards were helped by subsidies. Orders placed with the United States, an uncompetitive producer, reflect both the changing world demand for ships and government intervention.

The fluctuations in United Kingdom order books have, of course, been much greater in absolute amount than those of other shipbuilders, and, generally speaking, the decline from 1952 to 1954 was relatively greater also ; but, over the period as a whole, the United

[6] See Clement Stephenson, 'A Shipyard Re-organisation for Welded Prefabricated Construction', *Transactions of the Institute of Welding*, August 1952, p. 101.

[7] The figures refer to vessels of 1,000 gross tons and over.

Kingdom has had little difficulty in securing sufficient orders in the face of foreign competition, both to keep her industry fully employed and to have a comfortable margin of orders in hand for at least the major shipyards. The demand for ships, however, has been so great that it would have been strange if United Kingdom shipyards had not been fully employed. Nevertheless, Japan, France, the United States and Italy could not secure sufficient orders without the assistance of subsidies. The ability of the United Kingdom to compete successfully with Germany and Sweden—her two most important competitors until the expansion of Japanese output—is demonstrated by the fact that, although delivery delays for ships of the same type from the United Kingdom were at least as long and generally longer than for orders placed with these countries, she has continued to secure new orders. Since the United Kingdom was no better than or uncompetitive with Sweden and Germany in this respect, it is clear that she offered her customers other advantages such as the prospect of lower prices, better ships or the real or imagined advantage of buying British.

It does not follow that the United Kingdom offered her customers all these advantages. Any one could be sufficient to attract orders, which would otherwise have gone abroad, to United Kingdom yards. No conclusive evidence has been advanced in recent years that United Kingdom ships have been costing, or are likely to cost, more or less on the average than ships produced by her non-subsidised competitors. The structure of costs differs considerably in the various shipbuilding centres: Germany and Holland, for example, have the advantage of shift-working and low wage-rates, Sweden has that of high productivity and the United Kingdom that of cheap steel, so that no one country can be clearly distinguished as holding a decisive advantage in the long run. Nor can any judgment be made as to whether British ships are more reliable and less expensive on repairs than those produced by her competitors, though these are important matters. Increased first costs can easily be offset by later savings.

Shipbuilders of any country are at an advantage in securing orders from their own nationals. There are many reasons why this should be so: formal and informal connections between shipping and shipbuilding companies, the use of a common language, personal contacts, state intervention and the like. In the five years 1951-55 most of the main shipbuilding countries relied on their own output to fill almost the whole of their needs. Neither Germany nor Japan acquired any new ships from abroad: United Kingdom purchases averaged 3½ per cent. of new registrations, and United States and Italian purchases

4½ per cent. Swedish and Dutch purchases have averaged less than 10 per cent. since 1952. Only French purchases have been at a high level throughout the period. A substantial price difference, markedly earlier delivery dates, or the existence of business contacts with other shipbuilding countries, must operate before shipowners will place orders abroad. All of these factors have on occasion caused United Kingdom shipowners to build abroad, but, with the exception of 1938 and more recently 1955, orders placed with foreign shipyards have been small.

The special position of shipbuilders building for their own nationals suggests that we should look at performance in export markets rather than at total sales to judge the long-run competitive power of the main shipbuilding countries. The interpretation of the statistical evidence must, however, be made with several reservations in mind. In the first place, the statistics available for an examination of progress in export markets relate to output for registration under foreign flags. The practice of registering tonnage under the Panamanian or Liberian flags, to avoid taxation, regulations or controls, may mean that some export sales are in fact sales to companies controlled by the nationals of the shipbuilding country. Secondly, sales for foreign registration may be assisted by subsidies; French and United States output for registration under the flags of Panama and Liberia, for instance, cannot be regarded as giving any indication of the competitive position of these countries in export markets since it is known that their costs exceed substantially those of other countries. Thirdly, when order books are long, the inclusion of export orders in them is sometimes a matter of policy rather than of primarily commercial considerations; in the early post-war years United Kingdom shipbuilders were urged to export a substantial proportion of their output, and it may be that more recently there has been a change of heart in the direction of serving, and giving greater preference to, the home market.

In the competition for export markets the United Kingdom has been steadily losing ground. In 1913 the United Kingdom supplied 80 per cent. of the foreign market; in 1927-30 her share was 40-50 per cent., and in 1936-38 and 1953-55 little more than 20 per cent.[8] The indications are that the decline is continuing. In 1955 and early

[8] Including for this purpose exports to the Commonwealth. The figure for 1913 follows from a study in *The Glasgow Herald*, 5th February 1926; the range for 1927-30 is based on an analysis of figures given in *The Glasgow Herald's Review of Shipbuilding, Engineering and Commerce*; that for 1936-38 is calculated from *Lloyd's Register's* annual summary of ships launched.

1956, for instance, few orders were received from abroad.[9] The challenge to the United Kingdom in overseas markets has come from Germany, Sweden, Holland and, more recently, from Japan. The United Kingdom, which in the immediate post-war years supplied a high proportion of the needs of Norway, is gradually being ousted from that position by Continental shipbuilders. Germany exported a greater tonnage of ships to all destinations in 1954 than the United Kingdom, and the same was true of Japan in 1955. Sweden and Holland have also exported a considerable tonnage of ships.

We cannot, of course, conclude from this that the United Kingdom is able to compete with the leading Continental shipbuilding countries only in her home market. We have no means of knowing what share of export business United Kingdom shipyards would have obtained if home orders had been less plentiful. But the long-term trend, against the United Kingdom in export markets, carries a warning.

One result of the changing position in export markets is that German, Swedish, Dutch and Japanese shipbuilding is much more dependent on foreign orders than is the United Kingdom industry. This is brought out in Table I.

TABLE I

TONNAGE OF SHIPS EXPORTED AS A PERCENTAGE OF TONNAGE LAUNCHED [1]

Years	U.K.	Germany	Holland	Sweden	Japan
	%	%	%	%	%
1925-30	24	37	36	60	...
1931-38	18	53	22	63	...
1950-55	35	45	53	64	41

[1] Figures for Continental producers during the inter-war period are based on the analysis of *The Glasgow Herald's Review of Shipbuilding, Engineering and Commerce* referred to in footnote 8: they are approximate only. Other figures are based on *Lloyd's Register's* shipbuilding statistics. The percentage of Japanese output for foreign registration was small in the inter-war period.

The substantial increase in Japanese output which took place in 1955, and is still continuing, was almost wholly the result of export orders. In 1955, 70 per cent. of Japanese output was registered under

[9] See *The Financial Times*, 25th April 1956.

foreign flags, and, although this could not have been achieved without the payment of subsidies, the difficult economic situation of Japan makes a continuation of this practice highly probable. Other shipbuilding countries, which can compete effectively with the United Kingdom only with the aid of subsidies, are likely to continue to produce ships for their home markets, and at times may be expected to compete in export markets on the same basis. With the fortunes of German, Swedish and Dutch shipbuilders closely tied up with the export market, intense competition is to be anticipated from these countries in the event of any general decline in export sales. The prospects of the United Kingdom shipbuilding industry are likely in consequence to be more closely linked to changes in United Kingdom trade and the fortunes of United Kingdom shipowners than in the past.

It is not possible to make any reliable forecast of the future level of demand for ships from British shipyards, either in the long run or over a short period of time. But it is instructive to examine some of the figures which have a bearing on the matter. The size of the United Kingdom fleet is about 20 m. gross tons at the present time. In pre-war years scrapping, marine casualties and sales abroad amounted to about 4 per cent. of the size of the fleet.[10] If these rates were still applicable post-war, and wastage was made good ton for ton by new shipping, the average replacement demand would amount to about 800,000 gross tons a year. By itself this would, of course, be quite insufficient fully to employ the United Kingdom merchant shipbuilding industry at its present level of output. In order to do this about the same amount of orders would be needed either from foreign owners or from an expansion in the size of the United Kingdom fleet. In view of the preceding analysis too much reliance cannot be placed on foreign demand ; the United Kingdom may be fortunate if she secures an annual demand of a quarter of a million gross tons from foreign sources.

Bearing this in mind, United Kingdom shipbuilders may feel that the present rate of output corresponds closely to the level of orders that is likely to be forthcoming on the average during periods of, say, five or more years, and that the long-term prospect of keeping the industry fully employed at all times does not justify the costly effort that would be needed to expand output rapidly over the next few years. There is much to be said for this view, but it cannot be

[10] This figure, which has been taken from an unpublished study of wastage rates in the present century, has been estimated in such a way as to be applicable to a fleet of 'standard' age-distribution. Estimates which do not take account of this tend to underestimate pre-war wastage rates.

accepted without question. The experience of 1955 is that delivery delays can be so long that even British shipowners place orders abroad while foreign shipowners are seriously discouraged from placing orders here. So long as this is the position, foreign shipbuilding centres will be encouraged to expand their output and the United Kingdom's share of the world market will diminish by default.

A larger shipbuilding output in the United Kingdom would mean, of course, that more would be at stake if orders became hard to get, but it would not increase the risk of this happening if it served to keep in check the output of other countries. But the shipbuilding industry cannot expect to escape unscathed from the vicissitudes of world trade and sea transport, and, in spite of ten years of maximum output cushioned by a long order book, it must be prepared in the long run to adjust its output and its prices, as well as its order book, to fluctuations in demand. If it is to do so with equanimity it must be ready to cash in on the boom as well as to prepare for a slump, and it is with this in mind that concern may be felt about the slow expansion of United Kingdom shipbuilding output.

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Glasgow

CURRENT TOPICS

THE programme arranged for the sixth annual conference of the economists of the Scottish Universities at 'The Burn', Edzell, from 17th to 19th September, included papers by Mr. J. H. Smith (Aberdeen) on agricultural policy, Mr. J. R. Parkinson (Glasgow) on monetary theory and practice, and Professor D. F. Macdonald (St. Andrews) on employers' associations. A discussion on the current economic situation was opened by Professor J. W. Nisbet (St. Andrews).

Research in progress in applied economics in the University of Edinburgh includes a study of industrial development in the Forth basin since 1945—the establishment of new and branch firms, the reasons for their choice of location, the problems that have arisen and the ways in which these have been overcome. Other subjects of current research are: technological change and adaptation in the electronics industry; the industrial structure of the Grangemouth area and of the hosiery industry in Hawick; the organisation of the inspection function in industry; an analysis of normative factors in wage incentives; industrial relations in the fuel and power industries; and the structure of the Swedish labour market.

In theoretical economics, work is being done on the theory of international trade and on the theory of corporate price.

In agricultural economics the subjects being studied are: the economics of livestock marketing in South-east Scotland; the establishment of input-output standards for the critical examination of the farm as a business; and the general problems of labour on the farm. The economic geographers are working on the pattern of internal migration in Scotland in 1851, 1901 and 1951, as well as on some geographical aspects of trade in primary products.

Earlier notes on research in progress which have been published in the *Journal* have stimulated enquiries, particularly from foreign countries, and the exchange of information. Anyone who wishes to correspond with individual research workers in any of the subjects mentioned should write to the Secretary, The Scottish Economic Society, King's College, Aberdeen.

At the time of going to press full details of the winter programme of the Society's local branches were not available, but information on meetings so far arranged is printed below. Local secretaries (to whom

members should address enquiries or suggestions) will shortly be issuing a syllabus to members in their areas.

EDINBURGH

(*Secretary:* Dr. Mary T. Rankin, 51 George Square, Edinburgh.)

Meetings will be held on Wednesdays at 7.45 p.m. in the Hall of the Institute of Chartered Accountants, 27 Queen Street, Edinburgh.

17th October 1956 'Some Aspects of the Scottish Agricultural Economy.'—Sir Alexander Glen, Department of Agriculture for Scotland.

14th November 1956 'The Proposals for the New System of Valuation and Rating in Scotland.'—Ames Imrie, Esq., Edinburgh City Chamberlain.

12th December 1956 'The Finance of Investment.'—Dr. R. F. Henderson, Lecturer in Economics, University of Cambridge.

16th January 1957 'Present-day Problems of Trade Unionism.'—George Middleton, Esq., O.B.E., General Secretary, Scottish Trades Union Congress.

13th February 1957 'Social Aspects of Technology.'—Professor K. G. Denbigh, M.A., D.Sc., F.R.I.C., M.I.Mech.E., University of Edinburgh.

13th March 1957 'The Economy of Northern Ireland.'—Professor K. S. Isles, Queen's University, Belfast.

GLASGOW

(*Secretary:* M. Gaskin, Esq., D.F.C., Department of Political Economy, The University, Glasgow, W.2.)

8th November 1956 'Highland Problems from a New Angle.'—Sir Robert Urquhart, Chairman, The Crofters' Commission.

14th December 1956 'Control and Management of the Nationalised Industries.'—Mr. J. Grimond, M.P. for Orkney and Zetland.

17th January 1957 'Labour Relations.'—Professor D. F. Macdonald, Queen's College, Dundee, University of St. Andrews.

21st February 1957 'Some Aspects of World Food Supplies.'—Mr. C. J. Robertson, Senior Lecturer in Economic Geography, University of Edinburgh.

14th March 1957 'The Economy of Northern Ireland.'—Professor K. S. Isles, Queen's University, Belfast.

DUNDEE

(*Secretary :* Dr. I. F. Gibson, Queen's College, Dundee, University of St. Andrews.)

8th November 1956 'Scotland in the Days of Adam Smith.'—Professor H. Hamilton, Professor of Political Economy, King's College, Aberdeen. (Joint meeting with Abertay Historical Society.)

January 1957 Lecture by Professor Norman C. Hunt, Department of Organisation of Industry and Commerce, University of Edinburgh.

19th March 1957 'The Administrative Staff College.'—Noel F. Hall, Esq., Principal of the Administrative Staff College.

April 1957 Discussion meeting on the Budget.

ABERDEEN

(*Secretary :* D. L. Munby, Esq., 51 Whitehall Road, Aberdeen.)

Meetings will take place at 7.45 p.m. in the Chamber of Commerce, Union Terrace, Aberdeen.

11th December 1956 'The Finance of Investment.'—Dr. R. F. Henderson, Lecturer in Economics, University of Cambridge. (Joint Meeting with the Institute of Bankers.)

18th March 1957 'The Administrative Staff College : an Experiment in Advanced Management Training.'—Noel F. Hall, Esq., Principal of the Administrative Staff College.

ST. ANDREWS

Meetings will be arranged in conjunction with the Political Economy Club of the University : details may be had from Professor J. W. Nisbet, Department of Political Economy, University of St. Andrews.

RECENT ECONOMIC TRENDS

Post-war Trends in Scottish Agriculture

This note presents information showing post-war trends in the size of agricultural holdings and in landownership in Scotland. Although the agricultural statistics relate to holdings rather than farms, and include many units not occupied by farmers or managed as commercial units, it is clear that the number and proportion of medium-to-large-sized farms have increased since the end of the war.

The number of agricultural holdings is affected by the transference of land to and from agriculture. During the war years the area in Scotland under crops and grass was reduced from 4,558,000 to 4,425,000 acres, and since the war it has been further reduced to 4,387,000 acres (1955). Between 1945 and 1955 the total agricultural area, including rough grazing land, has been reduced by nearly 58,000 acres. The wartime transference of land to military uses mainly affected the larger farms and holdings, and since 1945 these have gained land from the Services Departments. In recent years farm land taken for houses and industrial uses may have affected the

Table I

CHANGES IN THE SIZE-DISTRIBUTION OF AGRICULTURAL HOLDINGS, 1939-55

Size of holdings (crops and grass)	Number of holdings, 1955	Changes in the number of holdings				Estimated change in crops and grass, 1945-55
		1939-45		1945-55		
Acres		No.	%	No.	%	Acres
1 – 5	16,941	+1,111	*+6·8*	−559	*−3·2*	− 1,400
5 – 15	17,775	+518	*+2·8*	−1,096	*−5·8*	−10,000
15 – 30	7,778	+83	*+1·0*	−556	*−6·7*	−11,400
30 – 50	6,200	+129	*+2·0*	−267	*−4·1*	−10,600
50 – 75	5,594	+30	*+0·5*	−104	*−1·8*	− 6,700
75 – 100	4,276	−5	*−0·1*	−104	*−2·4*	− 9,000
100 – 150	5,748	−2	*−0·03*	−100	*−1·7*	−12,700
150 – 300	6,488	−214	*−3·2*	+16	*+0·25*	+ 2,100
300 and over	2,226	−225	*−9·5*	+80	*+3·7*	+21,900
Total	73,026	+1,425	*+1·9*	−2,690	*−3·6*	−37,800

number of smaller holdings to a greater degree than that of the large farms, but if land area is considered then it is likely that medium-sized farms have lost most. The wartime increase in the number of

small units was caused partly by the inclusion of holdings for which returns had not previously been made and in part by the breakdown of some larger units. Some of the recent reduction in the number of small units is due to amalgamation and to transference of land to non-agricultural uses. Table I shows that since 1945 the number of holdings under 150 acres has been reduced by 2,786 and that of larger units has increased by 96. The decline in the number of small holdings has been general for all parts of Scotland but it has affected a relatively smaller area in the 'Crofting' counties than in other parts of the country.

Another post-war feature of Scottish agriculture is the increase in owner-occupation. In the nine years from 1945 to 1954 the number of holdings occupied by tenants declined by 6,592 while the number occupied by owners increased by 4,466. These changes are shown in Table II.

TABLE II

CHANGES IN THE NUMBER OF AGRICULTURAL HOLDINGS OCCUPIED BY OWNERS AND BY TENANTS, 1945-54

	Size in acres of crops and grass				
	1-50	50-100	100-300	300 and over	All sizes
1. Increase in number of holdings occupied by owners	2,170	809	1,264	223	4,466
2. Decrease in number of holdings occupied by tenants	4,092	968	1,347	185	6,592
3. *Line 1 as % of line 2*	*53·5*	*83·6*	*93·8*	*120·5*	*67·7*
4. Reduction in acreage of crops and grass rented [1]	35,307	67,686	168,918	65,166	337,077
5. *Line 4 as % of total acres of crops and grass within the stated size-groups in 1949* [1] .	*7·1*	*12·8*	*12·4*	*11·8*	*11·5*

[1] Relates to the period 1949-54.

Between 1945 and 1954 the total area of cultivated crops and grass occupied by tenants decreased by 451,230 acres while that in the occupation of owners increased by 414,652. The difference between these figures represents the net loss of cultivated land during these years.

In England and Wales there has been a substantial increase in the number of holdings under five acres in extent, and an important increase in the number with over 300 acres of cultivated land. Rutherford and Hirsch[1] have shown that between 1944 and 1953 there was an increase of 25·4 per cent. in the number of holdings with less than five acres: this represented an increase of 38,175 acres. During the same period the number of holdings with 300 acres or more increased by 6·3 per cent., which represented an addition of 368,589 acres.

The most important reasons for the trends outlined in the Tables fall into three main groups: (*a*) low net investment incomes from landownership, (*b*) the high capital cost of starting farming, and (*c*) the increasing economic and technical advantages of large farms.

The right of tenants to bequeath leases and the security of tenure provided by statute unduly restrict the freedom of landlords to terminate tenancies. As a consequence rented farms become vacant only at long and irregular intervals. This is a matter of considerable importance to landowners for it is impossible to obtain from sitting tenants, either by personal negotiation or arbitration, rents comparable with those obtainable in an open market. The present level of net income from landownership compares unfavourably with that of most other forms of investment, and the Department of Agriculture has estimated [2] that the rent and rental value of farm land in Scotland in 1952 represented a gross return of 2·9 per cent. on the estimated capital value of farms and holdings. The net return was probably not more than 1 per cent.

The market value of all agricultural land has increased, but that of farms sold with vacant possession is now double that of those occupied by tenants. Many landowners are obliged to sell their farms, and more would do so if tenancies could be terminated. Some sell to sitting tenants at prices slightly higher than those which could be obtained, for farms without vacant possession, in the market. Others take advantage of a terminated tenancy to sell at a higher price. As a consequence there has been a substantial reduction in the number of farms available for renting.

Many young men wishing to take up farming on their own account would welcome a change which increased the number of suitable farms to rent. Most of them have, or can borrow, sufficient capital for taking over and operating a farm, but are unable to find the

[1] *Farm Economist*, Vol. VIII, No. 1, 1955.
[2] *Scottish Agricultural Economics*, Vol. 6, 1955.

additional money to purchase it. A farm offered with vacant possession may sell for as much as £100 per acre, and the purchaser may have to find a further £60 to £70 per acre for livestock and equipment, and to finance production. Few tenants can hope to get into a farm and operate it for less than £40 per acre. In these circumstances many prospective farmers are unable to compete with those already in farming for vacant farms. The latter are often able to extend their farms with the minimum additional equipment and perhaps also without any increase in the number of regular workers employed. New entrants may have to buy new and not secondhand implements and machinery, and may have to pay more for livestock than farmers familiar with the district and the livestock markets.

It is not surprising, therefore, that a large proportion of vacant holdings is bought by established farmers. In this way small holdings, and especially those lacking satisfactory farm houses and farm buildings, are amalgamated with other farms.

Modern farm machinery, particularly cultivation and harvesting machinery, tends to encourage the growth of large farms. Large farms justify capital investment in the bigger types of labour-saving machinery, especially where they have a sufficient number of workers for economical operation.

If landowners had greater freedom to let farms there would be less disparity between the market price of vacant and rented farms, rents would be higher, and differences would be more closely related to variations in the quality of land and landlords' equipment. Many tenants, now farming at a relatively low standard of efficiency, would have their tenancies terminated. Whether this would increase the number of farms for renting by prospective farmers seems a little doubtful. The indications are that established farmers would offer rents appreciably higher than those which potential recruits might feel able to pay, and they might offer to purchase at premium prices rather than lose an opportunity to extend the size of their farms.

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